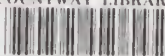
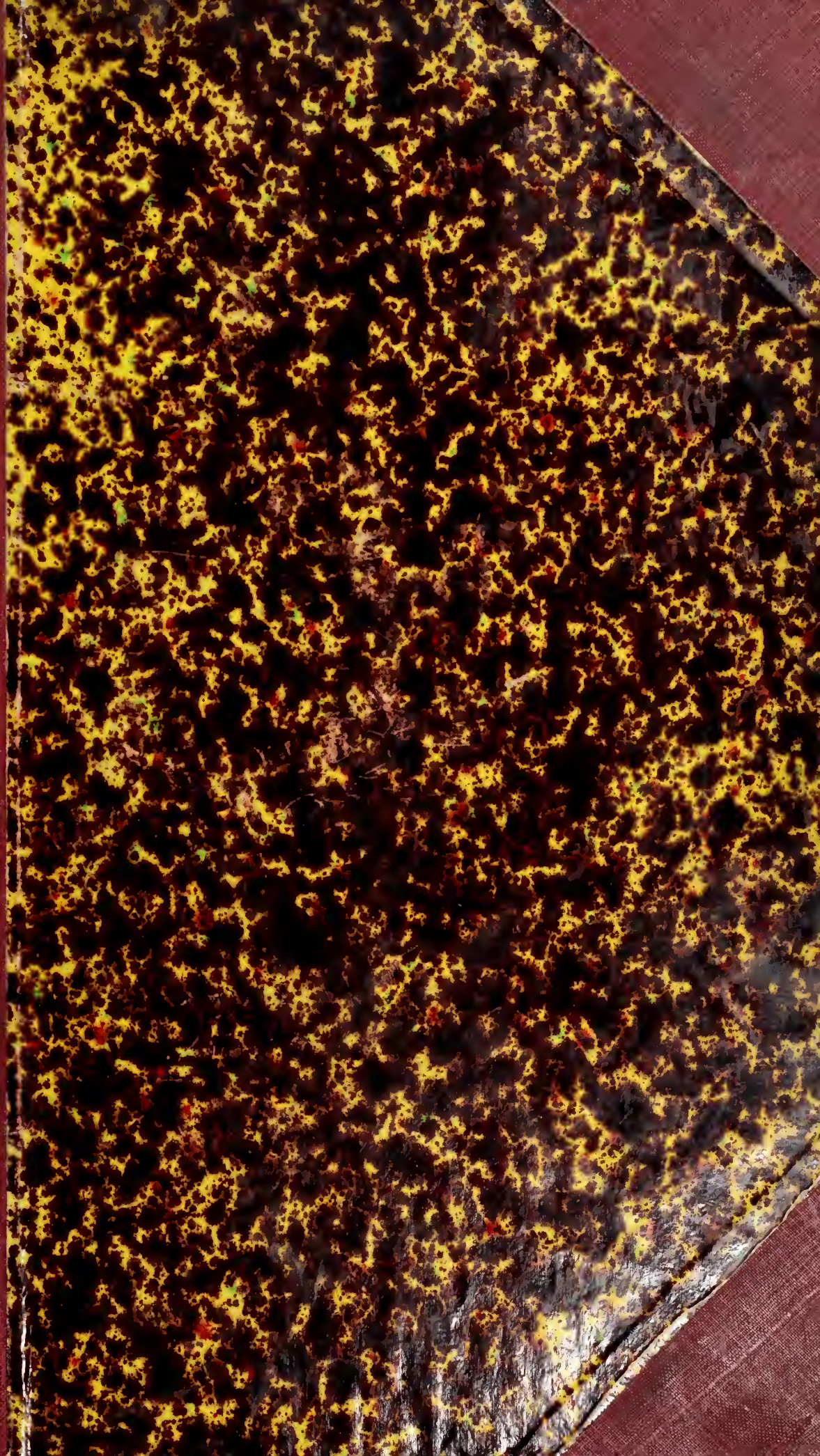


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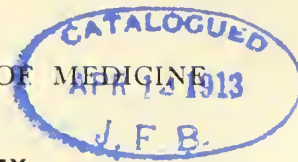
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## EDITORIAL NOTES.

A New Year and a new volume of the JOURNAL; three hundred and sixty-five blank days with their unknown happenings-to-be and unknown about as many blank pages to contain unknown chronicles of as yet unhappened things. How state and flat life would be if one knew a year ahead just what was going to happen; to awake every morning with a knowledge of every incident of the day ahead! Why it would almost be enough to make one fool the fates and quit!

It is difficult to imagine anyone with sense enough in his head to be the manager or editor of a magazine of any sort, kind or description, really believing that there never was a case of plague in California and that the whole "plague scare" was merely a deep-laid plot of the Marine Hospital Service. Of course it is possible that some such idiot may be alive and may be running a magazine and may really believe that tommyrot; "all things are possible but some of them are darn scarce." When the "Twentieth Century Magazine" publishes that sort of article and sends slips broadcast over the country calling attention to it, it is a good deal easier to believe that the magazine has been "influenced" to publish the article and that some one has paid for it and paid for advertising it. The slip in question says that "The writer shows up the reasons for declaring San Francisco an infected port, and says that no alleged case of bubonic plague in San Francisco was ever diagnosed as such by the attending physician, while the victim was alive or after death." That is just a plain lie. The statement has all the

earmarks of coming from the tainted-news bureau of the "league for medical freedom," a savory organization which is spending many thousands of dollars in the attempt to defeat any national legislation for a bureau or department of public health. The attempt is being made to fight and attack every sort of public health measure, not only national but state, and it is strongly probable that we shall see some of this work at Sacramento during the present session of the legislature. If there is anything that people who make their money dishonestly will not do in order to keep up the deception, it is beyond human imagination to guess what that thing may be.

It has been suggested that there has been so much criticism of "proprietary" medicines, in the last few years, and because so many of them have been shown to be fraudulent or to have made fraudulent or exaggerated claims, that

## GOOD REMEDIES

many physicians have come to think all "proprietary" preparations are not deserving of their attention. This is far from the fact; many of the most valuable remedies that we have are proprietary preparations. They have been submitted to the Council on Pharmacy and Chemistry, the Council has found their composition to be as claimed and the statements of the manufacturers not exaggerated. They are put up and marketed in a way to appeal only to physicians and there is every reason why they should receive professional recognition and be used as indicated. Many such are advertised in the pages of your JOURNAL; they should receive your intelligent examination and study and you should use them in order to determine their value, in your hands, in the treatment of your patients. It is distinctly to your advantage for you to look carefully through the advertisements in your JOURNAL and to see what remedies are there presented to you which you have not tried; nothing is advertised in these pages that is not worth your inspection and that is not in every way honest and reliable. Send for the literature on these things; send for samples; make use of the remedies till you find their place; and let the manufacturer know that you are taking an interest in him and his welfare and that you appreciate the fact that he is honestly preparing and marketing his products under the rules of the Council. This will help him, it will help your JOURNAL and it will help you, for you can not know too much about the remedies available in the treatment of your patients. But beware of the preparation that has not been submitted to the Council and approved by it; it may be all right, but the chances are that there is something wrong with it.

One of our members has written to the JOURNAL calling attention to a very dirty practice in most pastry stores—and possibly in other shops, though the special case in point was a pastry shop. In many of these, the paper for wrapping packages, cakes, bread, etc., is in sheets and when the saleswoman reaches for a sheet of

## DIRTY AND DANGEROUS.

paper she generally holds the cake or loaf of bread in the left hand and reaches for the sheet of paper with her right hand, dextrously wetting her thumb with saliva to facilitate the quick detaching of the top sheet on the pile. Not infrequently that portion of the sheet of paper which she has moistened with her spittle is then turned in and wrapped against the food that is later to be eaten, thus transferring some of her sputum from herself to other persons. It is in no circumstances a pleasant little proceeding and under some conditions one can imagine it to be very dangerous. Our correspondent, for instance, on one occasion saw a woman whom he knew to be syphilitic and to have mucus patches in her mouth, do precisely this thing; and the moistened portion of the sheet of wrapping paper came in contact with the cake which she was wrapping. Doubtless this is just one of the little things that have not come to the attention of the proprietors of such stores. The use of paper in rolls would go far to stop the practice, for there is not the necessity to wet the finger in order to separate one sheet from another.

A committee of the Los Angeles County Association has prepared some resolutions on the subject of the division of fees between physician and surgeon without the knowledge or consent of the patient, that are most timely; they will be found in full on another page of the JOURNAL. This form of dishonesty is contemptible; it is petty graft of the worst kind, and yet it is known to exist everywhere. Simple honesty seems, sometimes, to be about as rare as common sense. Another dishonest practice that is at least as bad, if not indeed worse, because it is more petty, is the demanding or taking of commissions from druggists. That is an old story and much space has been given to it in the pages of your JOURNAL in previous years. It is hard to say which is the bigger sinner, the druggist who gives the commission or the physician who either takes it or demands it. The people who divide their fees and the physicians who take commissions from druggists know that they are just petty thieves and grafters and that is the reason they keep it so secret; you never heard anyone admit that he did these things, let alone proffer the information.

Physicians, both men and women, and trained nurses are needed in many parts of the world by the Foreign Missions. Many of the locations that are open offer remarkably good service in hospital work, surgery, etc., and the positions pay enough to make the acquiring of this excellent experience an attractive thing for young men who wish to spend a few years in hard training before they settle down to private practice. For details and particulars, address Mr. Wilbert B. Smith, 125 East 27th street, New York City.

It is hoped the profession will give their earnest support to this bill which will be presented at Sacramento this winter. California should take pride in the effort to be the first state in the union to accomplish a radical reform in respect to Medical Expert Testimony. The bill as it will be presented will have the unanimous endorsement of committees from the Los Angeles and San Francisco County Medical Societies and Bar Associations and probably from the State Bar Association. At the Sacramento meeting the Council of the State Society cordially commended measures then on foot which have since resulted in the framing of this bill. The committee from the Los Angeles Council considers the bill as framed by Mr. Mueller the most comprehensive and effective ever presented in this country. It should and will remove the stigma which now attends such testimony under our present procedure.

#### MEDICAL EXPERT TESTIMONY.

Under date of October 1st, the State Board of Health sends out a notice to the effect that beginning January 1st, 1911, syphilis and gonorrhea shall be reportable to the health authorities as infectious diseases. It will be a very difficult thing to enforce this rule and the board has wisely decided that cases may be reported by office numbers and not by the names of the patients. The first essential to dealing in any way with the general question of venereal infections is to determine their extent; this can only be done with the co-operation of physicians. It is to be hoped that every physician in the state will aid the board in this present matter by reporting all cases of these infections. How much decrease in venereal infection may be secured in the course of time, no one can say; the work will be very difficult, but if even a little good is accomplished it will be well worth the effort.

#### VENEREAL DISEASES.

Some kind friend has sent to the JOURNAL, all the way from Imlay City, which, be it known, is in Lapeer County—and that, gentle reader, is in the fair state of Michigan—a copy, duly marked, of the *Imlay City Times*, a paper. The paragraph marked contains the information that a palpitating world has long awaited; the real nature of the frailty of age and the loss of vigor that comes with the passing years. It is "tox cord, or toxic cord." In some mysterious way a drop of blood gets in the bony canals that let nerves out from the cord to all the organs of the body, and this drop of blood dies, or gets tired, or gets toxic; it may even lead to blindness, unless "Dr. Harlan" takes a whack at the poor victim, and then, of course, he is restored to youth and vigor and relieved of his blindness. Treatments are only \$2.00 each, but *spot cash*. Is there anything that human credulity will not swallow? Is there any sort of fake that can not be "put over"?

"TOXIC CORD."



The physicians in Los Angeles are very busily at work in preparation for the meeting of the American Medical Association which is to be held in that city during the last week of June, 1911. From present indications the meeting will be in every way a very successful one though, of course, the attendance will not be so large as it would be in Chicago or Atlantic City. There is a curiously strong prejudice inherent in the mind of the easterner, against travel. A New Yorker seems to regard a trip to Chicago as close to an upheaval of nature, and he talks about "going out West" if he moves as far from Manhattan as St. Louis or Minneapolis! But in spite of that fact, a good many of them are coming to Los Angeles.

The committee on scientific program for the state meeting at Santa Barbara is arranging a program which it trusts will meet with the cordial approval and support of the profession of the entire state. It has seemed to the committee that a fewer number of papers and more time allowed for the discussion of them and for recreation, would appeal to all. With forty or forty-five papers the session could be made of the very best scientific value and much fatigue which results from a crowded program be avoided. Symposiums on surgery, medicine, obstetrics and neurology will be features of the program together with sections on Eye and Ear and Nose and Throat and on Genito-Urinary and skin diseases. There will, of course, be room for miscellaneous papers. The committee hopes to interest members outside the cities in a liberal contribution to the session's work.

#### ATROPHY OF TONGUE AND SYPHILIS.

The recent paper of Symmers' (*Amer. Jour. Med. Sciences*, Dec., 1910) on The Incidence and Significance of Smooth Atrophy of the Base of the Tongue has again directed attention to the observation made by Virchow many years ago that syphilis is often associated with lesions at the root of the tongue characterized by obliteration of the normal surface markings and by unusual smoothness and induration of the tissues in that vicinity. While the occurrence of these changes has been frequently alluded to, it remains a fact that no important and systematic investigation of the subject was undertaken until 1894, when Lewin and Heller published the results of their observations which confirmed the belief of Virchow that a causal relation existed between smooth atrophy of the base of the tongue and syphilis.

These investigators in studying 103 subjects with the lesions described found that 69% had anatomical evidences of syphilis. The majority (62%) were over forty years of age and the lesion was noted more frequently in women than in men. They could trace no relationship between hereditary syphilis and the lingual atrophy. In fact they advanced the view that the atrophy was the result

of an interstitial fibrosis following ulcerating gummata, and that therefore the lesion is practically always a late sequence of acquired syphilis. Lesser studied 166 cases but found gross evidences of lues in 44% only, and disagrees with Lewin and Heller with regard to the relation of the lesion to ulcerating gummata, believing that the indurative process is the result of a chronic interstitial inflammation involving to a greater or less extent all of the tissues at the base of the tongue. On the other hand, Skladney states that he noted the lingual lesion in 20 out of 24 cases of late hereditary syphilis, an experience which is quite contrary to that of Seifert, who was unable to determine any lesion of the character under discussion in any of 26 cases of late hereditary syphilis which he studied.

In this country Potter, with the exception of Symmers, appears to have been the only one to attempt to determine the clinical value of smooth atrophy of the tongue. He examined the tongue in nearly 400 individuals and arrived at the conclusion that when the root of the tongue is normal it is probably of considerable value in excluding syphilis. Symmers in looking over 75 cases of undoubted late syphilis found the lingual lesion in 85%. From his observations upon the subject he draws the conclusion that genuine indurative atrophy of the base of the tongue is invariably the result of syphilis; but he does not find any histological evidence to support the view of Lewin and Heller that the condition has its origin in broken-down gummata, in this respect agreeing with Lesser.

#### THE GASTRO-INTESTINAL TRACT AS AN ORGAN OF EXCRETION.

The role of the wall of the gastro-intestinal tract in the excretion of foreign substances from the blood has long been surmised, but it is only within the last few years that the subject has been investigated to any extent. The results of these investigations have been most interesting and appear to justify further experimental studies. One of the earliest proofs of the passage of alien substances from the systemic blood into the gastro-intestinal tract consisted in the injection of antimony subcutaneously and demonstrating its presence a short time later in the stomach. Morphin, atropin, strychnin, and snake-venom have also been known to find their way into the stomach or intestine. More recently Mendel has shown that strontium is excreted by the intestine, and Good, Harnack, and Steinfeld have demonstrated the same thing for lithium, manganese and bismuth.

To what extent micro-organisms are excreted by the walls of the gastro-intestinal tract has been less satisfactorily shown. Years ago Emmerich stated that the organism of cholera could be recovered from the intestine several hours after subcutaneous or intravenous injection, and he expressed the view



that the organisms were excreted by the intestinal wall. Although the experiments were by no means conclusive, Buchner supported the views of Emerich. More recently the subject of excretion of bacteria by the stomach and intestine has been investigated by Hess (*The Archives of Internal Medicine*, November 15, 1910). Without going into the details of the experiments it may be stated that this observer shows that at least the bacillus prodigiosus may pass directly from the blood through the intestinal wall. This was found to take place in one hour when one platinum loop of culture was inoculated. In these experiments all other paths of access from the blood to the lumen of the intestine were excluded.

Whether or not the same thing holds good for the human subject cannot of course be stated, but as Hess says, it is interesting to consider whether the analogy is applicable, whether the wall of the intestine functionates as an excretory organ not only in toxic conditions such as uremia, but also in bacteremias such as typhoid fever, or sepsis, and whether some of the intestinal symptoms and lesions, manifesting themselves in these states, are brought about by what may be termed a mural excretion. The whole question opens up an interesting field of speculation for the clinician, and offers alluring material for physiologist and pathologist alike.

#### COUNCIL MEETING.

The fifty-third meeting of the Council of the Medical Society of the State of California was held at noon on the 15th of December, 1910. There were present Drs. Kenyon, Aiken, Mays, Ewer, Ryfkogel, Grosse, Edwards, Parkinson and Jones.

The Secretary presented a statement of the financial condition of the Society, showing that there was more than sufficient cash on hand to pay all current bills and take up all outstanding notes, leaving a balance in the treasury. It was then moved, seconded and carried, that the Secretary be instructed to take up all outstanding notes of the Society (\$500.00).

The assessment for 1911 was fixed at \$3.00 per member and the subscription price to the JOURNAL was changed to \$1.00 and subscription made optional.

The Council extended a vote of thanks to Senators Estudillo, Roseberry and Holohan for their efforts to protect the public health of the people of California during the last Legislature.

The Secretary presented a report on the 22nd edition of Register and Directory, showing that the book had been issued with a profit to the Society of approximately \$200.00.

A number of matters connected with the general work and condition of the Society were discussed, particularly the very successful way in which the Medical Defense feature has operated, but no motions were made and no action taken.

#### ORIGINAL ARTICLES

##### FUNCTIONAL PERIODICITY IN WOMEN AND SOME OF THE MODIFYING FACTORS.

(Second Note.)

By CLELIA DUEL MOSHER, A. M., M. D., Palo Alto.

The subject of normal menstruation in women was discussed by the writer in a preliminary note published in 1901 in Vol. XII of the *Bulletin of the Johns Hopkins Hospital*.<sup>1</sup> As it now seems desirable to formulate some further conclusions arising from the immense mass of material which has been accumulating since 1893, and the correlation of which is still in progress, it becomes necessary to describe briefly the character of the information. The conclusions stated in the preliminary note as well as in this present one are based on two kinds of data—clinical and experimental. The first group consists of serial menstrual records of 400 women, collectively extending over more than 3350 menstrual periods. A large number of these records were made by the writer, month by month, when the women were under her personal observation from 1893 to 1896, and were then continued by the women themselves during the holidays and vacations. The records were supplemented by preliminary statements, careful intermenstrual notes, and subsequent letters. To this was added an intimate knowledge of the conditions under which the women were living and working. The second or experimental group comprises data on the respiration<sup>2</sup> and the blood, such as blood pressure, blood counts, hemoglobin, estimations and so on. A considerable amount of experimental work on the effect of clothing was also included.

The clinical records were begun 17 years ago, and the experimental work has been carried on as opportunity permitted in Dr. Kelly's laboratory at Baltimore; in the laboratories of Johns Hopkins and the Leland Stanford Junior Universities; and is still in progress.

The argument on which this study is based may be briefly stated as follows: Menstruation is apparently a more or less serious disability in a large number of women. One writer has described it as "a constantly recurring infirmity that occupies seven years out of thirty of a woman's adult life." It can be of no advantage to the race to have one-half of it incapacitated one week out of four. Unquestionably, therefore, relief from whatever incapacity may be associated with this physiological function is important, not only to woman as an individual, but to her as the mother of the race.

The following questions therefore arise:

1. Does the above description represent the normal or even average condition of women?
2. If not, what is normal menstruation?
3. What are the factors which modify normal menstruation?
4. What can be done to modify existing conditions?

The generally accepted view of menstruation is that it is a periodic flow of blood from the genital tract of a woman which is accompanied by varying degrees of incapacity. This idea of disability and suffering has been so thoroughly inculcated in women that one who is free from pain is almost apologetic and inclined to question whether her sense of well-being at this time is not abnormal.

The degree of suffering and incapacity described by different authorities has varied from disease to mere nervous instability. Hagewitch and Muscati called it a disease of women developed, according to the one, by civilization; according to the other, by the upright position. Tilt, after defining it as a "natural infirmity for about seven out of 30 years of reproductive life," adds that however unattended by suffering "this infirmity unfits them for any responsible effort of mind, and in many cases of body also."<sup>3</sup>

In Dr. Kelly's *Medical Gynecology*<sup>4</sup> is found a more guarded statement:

"Theoretically a woman in perfect health ought to know no difference between the menstrual and intermenstrual periods but this state of things exists only among uncivilized peoples. The effect of civilization, and more especially of the complex conditions of our modern life, has been to intensify nervous excitability to such an extent that the woman who menstruates to-day without pain or reflex disturbances of some kind is altogether exceptional."

Dr. Howell's physiology,<sup>5</sup> however, recognizes the possibility even among civilized women of freedom from disability. He says:

"Certain preliminary symptoms usually precede the appearance of the menses, such as pains in the back or head, or a general feeling of discomfort, although in some cases these symptoms are absent."

Without discussing further these various views, I may state a different one, which it is my purpose to discuss in the light of the data which I have obtained. I should define normal menstruation as a periodic flow of blood from the uterus of a woman, occurring at fairly definite intervals (reckoned from the first day of the onset of the flow to the first day of the next onset) in the same individual, but the intervals varying in different individuals, this function being unattended with pain or incapacity due to it as such. If we can divorce our minds from all preconceived notions in regard to this function,

be they derived from individual experience, sex tradition or accepted teachings, and consider it as we do the other periodic functions, this definition will not seem unreasonable. In the first place, it must be admitted that there is no reason for treating this function differently from the other periodic functions, such as sleep, digestion, defecation and urination, which likewise have their departures from the normal. We do not find these abnormal manifestations incorporated in the definitions of them. Take sleep, for instance: however common insomnia may be, we never consider it otherwise than a departure from the normal; indigestion is only the pathological expression of an abnormal condition of the digestive function; while constipation is quite as frequent as the so-called dysmenorrheas which are associated invariably with the definitions of menstruation.

In the second place, the observers of menstrual disturbances do not by any means agree as to the numbers affected or the degree of the infirmity. Moreover, the various bodies of statistics giving the percentage of women suffering at the menstrual period have all been based on *single statements* from women examined.

Brierre de Boismont, observations on 360 French-women, 77% dysmenorrhea.

Mary Putnam Jacobi, observations on 268 women, 46% dysmenorrhea.

G. W. Englemann, observations on 4873 women, 30 to 95%.

Dr. Mary Sherwood and Dr. Lilian Welch, in their chapter on "The Hygiene of Infancy and Girlhood" make an important contribution to this question in the following paragraph:

"Englemann has tabulated 5000 cases of beginning menstruation, and finds about 60 per cent. with more or less menstrual pain. Chapman thinks that fully 75 per cent. would give a history of painful menstruation. These figures are not corroborated by a study of the menstrual history of a group of school girls under medical supervision for several years preceding and following puberty. Such a study shows that in 75% of school girls normal menstruation occurs. In a representative group from a private school only 25 per cent. reported habitual discomfort; 56 per cent. of these, or 14 per cent. of the whole, remaining away from school regularly for one or two days; 36 per cent., or 9 per cent. of the whole, had sufficient pain to go to bed for one or two days. Statistics of girls of the same grade in public schools, the girls being less likely to report slight discomfort, show still smaller percentages."<sup>6</sup>

If these percentages of de Boismont, Jacobi and Englemann do represent the facts, they are indeed appalling, but that they greatly exaggerate the percentage of so-called dysmenorrhea is unquestionable in view of the following facts:

1. Statistics based on single observations are necessarily inaccurate, for the following reasons:

a. The details of menstrual experience are quickly forgotten; probably more quickly by those who do not suffer than by those who do.

b. When asked what their usual condition is, many women reply by describing the most recent



menstrual period, and forget the variations incident to previous periods.

c. It is more difficult to obtain records from well women than from those who suffer, because their condition, being normal, makes slight impression upon the mind; consequently the available data inevitably exaggerate the number of women who suffer.

d. Gynecological records are always available, and many of our statistical records are made up from the same sources. They certainly do not represent accurately the experience of average women, even when they are the patients' statements as to their condition before the illness which took them to the gynecologist. Not only is the present time of suffering bound to color their statements, but the importance of giving emphasis to every symptom they have ever had is unduly prominent in their minds. Under such circumstances, the occasional pain or discomfort becomes the habitual condition.

e. Increased discomfort may occur from cold and exposure in the winter season; therefore single observations made in inclement weather would increase unduly the proportion with painful menstruation.

f. The greater part of the observations on which the current view of menstruation is based were made by men and are therefore less accurate than those made by women, for the simple reason that women will speak more freely to one of their own sex than to a man, even though he is a physician.

The inaccuracy of general statements is well illustrated by certain tests which I have made on this point in collecting my own statistics. One hundred and eight women were asked to give their opinion as to their average menstrual cycle or the range within which it varied. When this statement was compared with the serial monthly record of each, it appeared that not one had given the correct average cycle and only sixteen gave it within one day. Of those who gave the limits within which the menstrual cycle varied, none gave them correctly.

If such contradictions can occur between single observations and continuous records in the case of women who were making an effort to tell the precise truth, it is reasonable to suppose that the statistics quoted, which set down 30 to 95 per cent. of all women as having some dysmenorrhea and which are based on single statements, must vary widely from the truth, if indeed they do not grossly exaggerate the amount of suffering.

2. Is all of the so-called dysmenorrhea true dysmenorrhea? Let us clear up the subject by dividing all dysmenorrhea into two classes: (a) those cases due to organic trouble of the generative organs, which belong to the gynecologist, not to the physiologist; (b) cases of functional dysmenorrhea. The functional dysmenorrheas must be again subdivided into (1) the true functional dysmenorrheas, and (2) coincident functional disturbances occurring in other organs at or near the menstrual period, but in no way due to the menstrual function as such.

In order to make more clear what I mean, I must refer to certain experiments in blood pressure which I made in 1901. At that time I called attention

to the rhythmical fall in blood pressure, at definite intervals, which occurs in men as well as women; and which is, therefore, not a menstrual rhythm.

A curve constructed on the subjective observations of the sense of well-being, shows ups and downs corresponding to the marked variations in blood pressure; the sense of maximum efficiency of the individual corresponding to the time when the pressure is high, and of lessened efficiency to the periods of low pressure. The observations were carried on independently of each other. The subjects whose daily blood pressure were being made by the writer, kept a separate record at the same time of all their sensations which had to do with the feeling of well- or ill-being. This personal data I did not see till after I had plotted the blood-pressure curves. In no case was the change in efficiency sufficient to incapacitate the individual.

In both sexes the time of low pressure appears to be a period of increased susceptibility. If symptoms of any kind are shown they are apt to be given by the point of least resistance. For example, in a man or woman having a tendency to digestive disturbances, the symptoms from the digestive tract are likely to occur at the period of low blood pressure; or when a slight chronic catarrh exists, as so frequently happens in this climate, there may be marked increase of symptoms from the respiratory tract.

When the rhythmical fall in blood pressure in women occurs at or near the menstrual period, the associated depressions, digestive disturbances, catarrhal symptoms, etc., which may occur at the period of low blood pressure, are usually referred to the menstrual function.

The point of lowest pressure is not, necessarily, coincident with the onset of menstruation, but varies in relation to it in different individuals. In Case I, when the blood pressure observations were carried over two periods, the lowest occurred on the last (6th) day of the menstrual period, in one month, while in the next month it occurred on the fourth day of the menstrual flow, which lasted seven days. These variations would not only serve to emphasize the fact that this drop in blood pressure is not a menstrual rhythm, but they also indicate that it is a mistake in the particular case of coincident slight digestive disturbance, i. e., Case I, to refer it to the menstrual condition as a cause.

The variations in two other cases were as follows: Case II the lowest pressure occurred on the first day of the menstrual flow, and in Case V it occurred on the eighth and last day of one period, and at the next on the first day of the menstrual flow.

One young woman with whom I discussed this matter stated that great mental depression was the only symptom she ever had, but on further questioning she admitted that she had noticed that the depression sometimes came before the flow and sometimes during the flow, but had nevertheless attributed it to menstrual disturbances. In such a case it would be more reasonable to attribute the depression to the fall in blood pressure than to menstruation, or the symptoms in this case might be due to a functional disturbance in the nervous system at or near the time of menstruation.

I am convinced that many of the so-called dys-



menorrhoeas are not dysmenorrhoea at all, but coincident functional disturbances in other organs.<sup>7</sup> It is highly suggestive that the symptoms coincident with low blood pressure usually are slight, in busy, active women, as in men.

When the attention is of necessity directed to so obvious a process as the menstrual flow, untrained women, especially if without absorbing occupation, naturally refer their lessened sense of well-being and diminished sense of efficiency, which may accompany the lowered general blood pressure occurring near or at the menstrual flow, to the function of menstruation.

To sum up: The percentage of women suffering at the menstrual periods as given in the various statistics published, greatly exaggerated the facts, first, because the data are based on single observations; and second, because among the functional dysmenorrhoeas are included all the coincident functional disturbances in other organs due to lowered general blood pressure, the blood pressure having a rhythm of its own, independent of the menstrual rhythm.

But if my contention be granted, the fact remains that too many women are periodically incapacitated.

Of the factors at work producing the dysmenorrhoeas (and producing also the exaggerated emphasis upon associated disturbances which are usually included among the dysmenorrhoeas) the following are most prominent:

I. *Psychical Influences:* The attention of girls is directed of necessity, but often unduly, to so obvious a function as the menstrual flow. From the moment a girl hears of it, she is taught to regard it as a periodic illness. The terms "sick time," "being unwell" have long been grafted into our ordinary speech. Frequently the terms "monthly period" or "menstruation" are not understood by the ordinary woman. The effect upon the mind of constantly anticipated misery can scarcely be measured. Imagine what would be the effect on the function of digestion if every child were taught to refer to it as a sick time! After each meal every sensation would be exaggerated and nervous dread would presently result in a real condition of nervous indigestion, a functional disturbance. Or again, imagine the effect upon the periodic evacuation of the bowels if every boy and girl were taught that constipation was practically inevitable for every person. Would there not be an inhibition of the normal peristalsis and a resultant imperfect functioning? It is said that it is possible to make a man ill by simply having a number of people tell him how ill he looks. Certainly there is no disputing the fact that the mind has a powerful, if unconscious, control of organic processes. For generations, if we have taught girls anything at all in regard to menstruation, we have been instilling the idea that it is a periodic illness involving suffering and incapacity. Surely this is a very potent factor in the emphasis and exaggeration of every sensation at this time. From girlhood to middle age women are brought up in anticipation of misery, for even the cessation of menstruation, the menopause, is regarded with apprehension. Ask any woman how she feels about the coming change of life, and she will invariably tell you she looks forward to it with dread, expecting to be incapacitated

or perhaps insane. Thus her own nervous anticipations tend to increase whatever incapacity she may have to suffer. While it is true that a certain number of women are incapacitated at this time; that it is a period of profound changes in the generative organs, and a period when malignant disease is more frequent, yet I do not hesitate to affirm that much of the incapacity of this period is unnecessary and avoidable. There is no occasion for a woman to dread this period unduly. Much of the trouble is due,

1st, to a nervous letting go of the woman's self-control; an acceptance of the "inevitable incapacity." Instead of morbid unhappiness, the climacteric should produce in the mind of a healthy woman no more than a mild regret that the period of youth and potential motherhood is over, and should be naturally welcomed as release from the inconvenience attendant upon menstruation.

2nd. Nervous symptoms in women at the menopause are due as much to social and family changes as to physical causes. If the woman has been the mother of a family, her family has grown up, her period of financial stress and effort in helping to build up the family fortunes is over. If she has had intellectual interests earlier in life, she has dropped them. She is confronted with a loss of her usual occupations and an absence of all necessity to exert herself; and at the same time her attention is directed unduly to her physical discomforts, be they small or great, or be they only a mere physical consciousness of altering conditions. Her condition is almost exactly analogous to that of an active man who stops business in middle life. Such a man nearly always develops neurasthenic symptoms. Why should we be surprised when a woman does the same, with even greater reason? Without absorbing occupation, without mental diversion, and encouraged by the sympathetic pity of her friends, she lets herself go to pieces nervously, and spends a period of years wearing out her family and finding life not worth living.

In a recent article, Church has called attention to the nervous and mental disturbances of the male climacteric.<sup>8</sup> This has added proof that the blood-pressure rhythm is a periodic variation, not necessarily coincident with the menstrual flow. Although the disturbances at the menopause are in part at least due to the same causes as the other changes which take place at that period of life in both sexes, the cessation of the monthly flow does not necessarily account for all that may happen at this period. For this reason it might be desirable to limit the term "menopause" to the cessation of the menstrual flow in women, and to use the broader term "climacteric" for the manifestations of the changes at the end of the sexual life in both men and women.

Setting aside the women who have organic disease, what classes escape the disturbances of the menopause and climacteric? The answer may be given without fear of contradiction: those who are busy and useful. The women who have absorbing occupations, who are vitally necessary in the world, are the ones who get through this period unharmed. A prominent woman physician in the East declared a few years ago that not a single woman physician

of her acquaintance had gone to pieces at the change of life. Among a considerable number of women who are teachers or authors or (in some cases) have carried the burden of the mother of a family while occupying a salaried position throughout the menopause, not one has had to quit work for this cause and two have certified that the research work which has brought them distinction was done during the years of this functional change without any inconvenience whatever.

If all women were examined after 40 years of age to make sure that no insidious malignant growth is at work; if all thought of the menopause were then dismissed from the woman's mind; if her work or her care were lightened merely and she were provided with absorbing occupation which did not make excessive demands upon her strength, nine out of every ten women would go through the menopause without the world knowing that the time had even arrived.

Having pointed out briefly the psychical and the social causes for the dread of the menopause in women's lives, I may return to the discussion of the menstrual habits which lay the foundation for them. The effect of a mere attitude of mind upon this function may be illustrated by the experience of Miss X, who had developed a habit, when she was about nineteen years old, of vomiting the food she ate on the first day of menstruation. The habit seems to have been induced by severe attacks of indigestion which originally may have happened occasionally at or near the monthly period. Because of it she had practiced fasting on the first day of menstruation for about five years. About this time a man living in the same boarding-house commented to his wife on Miss X's periodic abstention from food. The wife repeated this comment to Miss X herself, who thereupon determined to eat her food every day "even if it killed her." She never vomited again, and is to-day a perfectly well woman with no periodic symptoms of any kind.

Believing that a universal crusade against the terms "sick time" or "being unwell" to designate the menstrual period would lessen the number of women with spurious dysmenorrheas, I have banished them in all my work with women. The psychical effect of such terms cannot readily be measured, for in truth the whole physical life of women has come to be expressed in terms of menstruation. Until we can treat this periodic flow of blood from the uterus as an incident rather than the central idea of life, the morbid apprehensions will continue to exert a malign influence and the general disabilities and neurasthenic condition of women will be thereby increased.

Certain physical factors constitute a second class of influences which are at work to bring about physical degeneration, and to multiply the number of women suffering from dysmenorrhea. The most important of these are: (1) Alteration of the normal type of respiration due to unsuitable clothing; (2) lack of muscular development; (3) incorrect posture; (4) chronic constipation. These may be discussed seriatim:

## A FEW NOTES ON THE NEW REMEDY FOR SYPHILIS, "EHRlich, 606."\*

By DOUGLASS W. MONTGOMERY, M. D., San Francisco.

While in Buenos Aires on a trip through South America, Dr. Balmano Sommer told me the news of a remedy recently discovered by Ehrlich of Frankfurt, that was said to be so startlingly effective as to constitute a revolution in the practice of medicine. I set out immediately for Europe. On arriving in Paris, through the kindness of Dr. Hallopeau, I became acquainted with Dr. Milian, who was using the new drug on the patients in the St. Louis Hospital. Dr. Milian is an excellent observer, and most genial in his presentation of facts; and the new remedy for syphilis could not have been put in better hands.

There is no doubt "606" has a marvelous effect on active syphilitic lesions, whether primary, secondary, tertiary or hereditary. What action it will have on such manifestations of syphilis as tabes and paresis can only be determined after long observation. Nor can the effect of the remedy in preventing the occurrence of these grave diseases of the nervous system yet be decided. Ehrlich has recently given it as his opinion that "606" should not be used either in tabes or in advanced paresis.<sup>1</sup> Dr. Milian showed one case that seemed to indicate that some effect had been produced. A young man was just recovering from a gastric crisis, when a dose of arseno-benzol was given him. He immediately had another crisis, and a severe one. When he recovered from that, he looked like a chastened spirit. What the ultimate effect in this case will be, whether beneficial, or detrimental, or indifferent, will be a matter for further observation.

According to the first reports this remedy seemed strangely free from evil or disagreeable results, for, after all, the drug contains arsenic. Furthermore, in therapeutics, the axiom is almost constantly true, that a drug that is powerful for good, is also powerful for evil. Even quinin has often disagreeable or dangerous effects. Up to the present the only disagreeable results I have seen from "606" are pain, redness and doughy swelling at the point of injection, and some rise in temperature. It is said that in a number of cases necrosis has occurred after the fourteenth day at the point of injection. I have seen nothing like this in the cases here. In discussing this point, Dr. L. Brocq remarked that twenty years ago, when the mercurial salts were injected into the subcutaneous tissues between the shoulder blades, where the "606" is now usually injected, they were also followed, at times, by severe ulcerations. This resulted in the mercury being injected into the buttocks.

I have not yet seen any fatalities from arseno-benzol, but it is freely rumored there are now fourteen cases of death from its use, and that one of

\* Written specially for the State Journal.

<sup>1</sup> Wiener Med. Wochenschrift. No. 36, Jahrgang 1910.



the victims was a man of thirty-five years of age, and in excellent health, except for his chancre, and that he died with symptoms of acute arsenical poisoning, in three hours and a half after receiving his injection, which was said to have been given by one of the men most experienced in the use of this medicament.

Some of these casualties are attributed to faults in elimination, but the drug has been given with apparent benefit in acute syphilitic nephritis. Dr. Milian gave a full dose to a man suffering from malignant syphilis, with a large quantity of albumen in his urine, edema of the legs and over the sacrum, and a porcelain glitter to his conjunctivae. The following day he had bad symptoms with vomiting, but later improved and has since left the hospital free of symptoms of syphilis.

Especial care is required in preparing "606" for injection, so that its chemical identity, and the relation of its elements may not be disturbed. The liquid injected should be neutral in reaction. The directions, therefore, for administering the drug should be painstakingly followed. The introduction of this therapeutic agent also accentuates the necessity for careful diagnosis. An incident in Dr. Milian's clinic illustrates this point.

A young man presented himself for treatment on account of a sunken, dark crusted lesion of the back of the right wrist, a few furuncular like lesions over the first digital phalanges and marked hoarseness. He had, also, a tremulous, coated tongue, and a severe pharyngitis with enlarged tonsils, that might easily have been correlated with the skin lesions as indicative of syphilis. Those throat symptoms, however, excited suspicion, and led to a narrower investigation, developing the fact that the man was a heavy drinker, and had a heavy drinker's throat and voice. The syphilitic looking skin lesion on the back of the wrist was found to be an ecthyma in an unusual situation, and the furuncles on the fingers were due to the same virus as the ecthyma.

If an incorrect diagnosis had been made, and a dose of arseno-benzol had been given, the skin lesions would likely have cleared up in due time anyway. Then as a matter of course the cure would have been incorrectly attributed to the drug, and the patient, ever after, would have labored under the grave disadvantage of thinking he had been infected with syphilis.

The good effect of the drug in primary syphilis was well shown in a patient, who had two chancres of the penis and a large indolent bubo in the right groin. In a few days after administering arseno-benzol the chancres were rapidly drying up, and the bubo had markedly diminished in size, and no further symptoms had developed. Of course in the natural history of the disease there is usually quite an interval between the primary and the secondary symptoms, so that the fact that the latter were not present was of very little importance. No. "606" seems to act particularly well on lesions of the mouth and throat. I saw it given to a young girl with a gumma of the right tonsil, and voiceless from an accompanying pharyngitis. In a few days after the injection a marked amelioration had taken place.

A most interesting case was that of a child with

an hereditary syphilitic proliferative periostitis of the left ulna. The diagnosis lay between sarcoma and syphilis, and was decided in favor of the latter by a radiogram that showed the bone overlaid by the new tissue, that had a characteristic flocculent border. In sarcoma the bone itself would have been rarified, and the flocculent border would have been absent. An injection of "606" was given, and in less than a week the circumference of the affected arm was reduced by eight centimeters.

These results are sufficient to show the effect of the drug in syphilis. That they are marvelous goes without saying, but the effects of the old drugs, mercury and iodid of potash, are also marvelous, and the relative values of each will have to be worked out in the clinics. It would appear that in some cases when constant recurrences take place in spite of the administration of mercury and iodid of potash, the new remedy shows a superiority over the old ones.

At the earnest request of the patient, I saw Prof. L. Brocq give a dose to a leper, but I did not remain in Paris long enough to observe the result.

In considering the value of "606" as a remedial agent, the enthusiasms evoked by any new remedy must be taken into account. Nevertheless, even if arseno-benzol should turn out to be less antiluetic than the old remedies, enough has been demonstrated to prove that a most valuable agent has been discovered.

The dose of the new remedy is given as about one centigram to the kilogram of the patient's weight. Usually about sixty or seventy centigrams are injected, and Ehrlich, I understand, says that even a gram or more may be used. The question of repeating the dose is not yet settled. The patients are told to return in fifteen days. The ideal is to cure the patient with one dose, but ideals are seldom realized. I have not yet seen a second dose given. I have, however, seen an abundant secondary syphilitic rash persist in full bloom, after a dose had been given, but in this case the quantity injected had been unusually small, and was probably inadequate.

#### SERUM DIAGNOSIS OF SYPHILIS.\*

By L. S. SCHMITT, M. D., San Francisco.

The serum diagnosis of syphilis is based upon the principle first expounded by Bordet & Gengou (*Annales de Instit. Pasteur* 1901, vol. 15, No. 3, p. 290) viz. that in infectious diseases there is a definite relation between the antibodies found in the patient's serum and the antigen (microorganisms, etc.), which formed them.

If an antigen (viz. microorganisms capable of producing antibodies) comes in contact with its corresponding antibody (the defensive substance produced by the individual under the influence of a specific virus—Levaditi & Roche, "La Syphilis," p. 121) in the presence of a complementary substance known as "complement" a reaction takes place. This is known as bacteriolysis. The reaction does

\* Read before County Medical Society, June, 1910.

not take place unless the antigen (bacteria, cells, albumen, or products of bacteria) and antibodies correspond and only in the presence of complement. Bacteriolysis is not perceptible *in vitro*. The three substances (antigen, complement and antibodies) necessary to carry on bacteriolysis are known as the bacteriolytic system. When red blood corpuscles are brought in contact with the serum of an animal of a different species previously treated with similar corpuscles (amboceptor) and in the presence of complement the red corpuscles are dissolved. Amboceptor is thermostable, i. e. is not destroyed by heating at 56° C. This reaction is known as hemolysis. Again the presence of complement is essential to the reaction. In addition complement is thermolabile, i. e. it is destroyed at 56° C. after one hour. The three substances (red blood corpuscles, complement and amboceptor) are called the hemolytic system. This latter reaction is apparent *in vitro*. If then these reactions are carried on simultaneously in a test tube using only sufficient complement for one system it is apparent that one or the other reaction will fail to take place. For example: Starting with an emulsion of typhoid bacilli as antigen and adding thereto a serum containing typhoid antibodies the antibodies and antigen will be joined together, and with the complement. The complement is then "fixed" and is not available for the hemolytic system. Therefore the red blood corpuscles are not dissolved—hemolysis does not take place and we have positive reaction showing the presence of typhoid antibodies in the serum.

If the suspected serum does not contain typhoid antibodies the complement is not used in the bacteriolytic system, and is available for or "deviated" to the hemolytic system. This becomes apparent by the dissolution or hemolysis of the red blood corpuscles so that if hemolysis does occur we infer that the complement has not been fixed, the antigen and antibodies do not correspond, or that the antibodies are lacking and the reaction is negative. So, the presence of hemolysis means a negative reaction and its absence a positive one.

In 1906 Wasserman, with his collaborators, Neisser and Bruck (*Deut. med. Woch.* 1906, vol. 39, No. 19, p. 745), first used this principle in the diagnosis of syphilis.

Shortly afterwards, Detre (*Wien. Klin. Woch.* 1906, *XIX* 619) published a short paper along similar lines.

It is not the intention of this paper to set forth technical methods, but a brief, critical review of the principal methods employed will serve to show their variations.

1.—Wasserman, Neisser and Bruck (*Deut. med. Woch.* 1906, p. 745) used sheep's corpuscles, anti-sheep amboceptor, inactive serum, i. e. serum in

which complement has been destroyed by heating, and guinea pig serum as complement. As antigen a watery extract of syphilitic liver was first used. Later an alcoholic extract was used. Normal heart and liver, and mashed guinea pig's heart and liver, beef heart and kidneys in alcoholic extract have also been used as antigens. From the work of Porges and Meier (*Berl. Klin. Woch.* 1908, *XLI*, 731), Landsteiner, Miller and Poetzel (*Wien. Klin. Woch.* 1907, *XX* 1565), Levaditi and Yamunchi (*Comp. rend. Soc. Biologie* 1907, *LXIII* 740), and Noguchi (*Serum Diag. of Syphilis*, p. 29), it was determined that the reaction is not specific and could be obtained with non-syphilitic antigens as well as with crude lecithin, sodium glycocholate and sodium taurocholate, sodium oleate, sodium cholate. Noguchi (*Serum Diagnosis of Syphilis*, p. 37), calls attention to the presence of natural anti-sheep amboceptor in human blood serum. If present it will increase the total amount of amboceptor available and will negative certain sera containing a small number of antibodies.

2.—In the Noguchi system of the Wasserman method (*Journ. Exp. Med.*, vol. *XI*, No. 2, 1909), a separate suspension of human erythrocytes is used. He also used guinea pig serum as complement, and immunized rabbits with human blood. At first he recommended lecithin as an antigen. In his more recent publications he states that he uses an acetone insoluble extract of human heart and liver, or of the organs of a syphilitic foetus. He uses his antigen and amboceptor in the dry state by impregnating filter paper with them. He then standardizes the filter papers and uses them instead of the re-agents in liquid form. He further states that in his method the serum of the patient may be used in either the active or inactive state, but if inactive four times the quantity must be used. He uses the acetone insoluble antigen on account of his recent investigations, which proved that certain non-specific proteins and peptids can sometimes produce a deviation of the complement when mixed with active human serum. Therefore no active serum should be used with an aqueous or alcoholic antigen unless the above mentioned substances are first removed from the antigen by fractionating with acetone.

One further advantage of this method is the fact that a much smaller amount of blood is employed than in the original Wasserman method.

3.—Tschernogubow (*Berl. Klin. Woch.* 1908, *XLI* 2107), used an anti-human amboceptor obtained from an immunized animal. He also used two drops of blood from a suspected patient, from which he obtained the necessary serum, the blood corpuscles and the complement for the reaction. The usual controls and incubation periods were also used. This method is also open to criticism as stated by Noguchi (*Serum Diagnosis of Syphilis*, p. 40), in that the amount of complement in human serum varies. Complement, and also erythrocytes rapidly deteriorate, and, therefore, old blood cannot be used, and, moreover, because the complement and antigen cannot be separated it is impossible to determine



whether or not the antigen of itself has any anti-complementary action.

4.—Bauer (*Deut. med. Woch.* 1908, XXXIII 698) used the natural anti-sheep amboceptor present in human serum instead of immunizing animals against sheep corpuscles. As the anti-sheep amboceptor of human serum varies greatly, and in children is entirely absent, this method is too sensitive on account of the absence of sufficient amboceptor, and cannot be used at all with the blood of young children.

5.—Hecht (*Wien. Klin. Woch.* 1908, XVI 1742) going one step further than the Bauer system, takes advantage of the presence of complement in the human serum as well as the presence of natural anti-sheep amboceptor, so that all that would be necessary would be the addition of antigen to the patient's own serum. The obvious source of error in this system is the inability to determine the amount of re-agents present during the test.

6.—Margaret Stern (*Berl. Klin. Woch.* 1908, XLII 1489) utilized the complement of the patient's serum, and added a few units of anti-sheep amboceptor. As amboceptor rapidly disappears after the blood has been collected it would be necessary to perform this test at once, and again the amount of the various reagents are unknown.

From the above résumé it is apparent that the methods herein sketched other than those of Wasserman-Neisser-Bruck and of Noguchi are all open to the same criticism, namely, that the amounts of amboceptor, complement and antigen are not known. In the Wasserman and Noguchi systems it is possible to standardize each separate factor and determine quantitatively the amount necessary to carry on the test. The Wasserman reaction, as above stated, is open to the single criticism that in some cases anti-sheep amboceptor is present in human blood. This, however, in a series of nearly 350 reactions has been found but three times by the writer.

At the University of California Hospital we have abandoned the use of the dried amboceptor and antigen in the Noguchi method, as it was found that these substances may be easily preserved for a sufficient length of time in the ice box. Experiments with the Noguchi papers when controlled with the liquid re-agents have demonstrated that those impregnated with antigen will not keep. This result has also been obtained by others.

Care must be taken in collecting the patient's blood—aseptic precautions need not be taken, but not a single drop of fluid except isotonic salt solution must be allowed to mix with it. In our work dry, sterilized needles are used to collect blood from the superficial veins of the arm. In children and people with small veins the finger or great toe is punctured and the blood collected in a Wright's tube.

The antigen used is made from syphilitic or normal human heart and liver, and is first extracted with alcohol and then fractionated with acetone. Allowing the heart and liver to rot increases the strength of the antigen. When using the Wasserman method one-half the amount of the re-agents as described in the original method are used. In the Noguchi system both active and inactive pa-

tient's serum are used. If the latter, four times the amount as above stated. When using the cerebro-spinal fluid, ten times the amount is utilized.

The complicated technique of the complement fixation reaction has led, directly or indirectly, to the attempt to diagnose syphilis by precipitate tests. These, briefly, are as follows:

1.—The Klauser reaction—.2 c. c. of the serum of a suspected patient, and .6 c. c. of distilled water are placed in a test tube. If a precipitate forms at the bottom of the tube in from one to fifteen hours the test is considered positive; if negative no precipitate forms. Klauser, himself, later stated that a positive reaction was obtained in typhoid, pneumonia and tuberculosis.

2.—Fornet and Schereschewsky found that by adding to the serum of a parasymphilitic the serum of a patient known to have definitely secondary lesions, a ring precipitate occurred at the point of contact within two hours. This reaction is non-specific as the same result may be obtained with normal serum.

3.—Porges and Meier found that a precipitate occurred within fifteen or twenty hours at room temperature, when a syphilitic serum was added to a suspension of lecithin in a test tube. A solution of sodium glycocholate gave the same result. Of the precipitate test Butler (*Journ. A. M., Apr. 2, 1910, 115*) concluded that the complement fixation reaction gave a higher percentage of positive results and consequently was more reliable than the precipitate tests. In the lecithin tests 50% of non-syphilitics gave a positive result and, therefore, the test is of no value in the diagnosis of syphilis.

#### DIAGNOSTIC VALUE.

The diagnostic value of the complement fixation reaction varies with different workers. It is difficult in going over the recent literature on this subject to arrive at any definite conclusion, by reason of the fact that different workers have used different methods. Moreover, the classification of the various forms and stages of syphilis are so indefinite that it is apparent that many diverse classifications have been used, greatly reducing the value of the statistics put forth.

Noguchi (*Serum Diagnosis of Syphilis, pp. 102 et. seq.*) has compiled a series of cases, the totals of which are as follows:

	No. of Cases.	% +
Primary syphilis .....	416	69.8
Secondary syphilis with manifestations	1605	89.4
Tertiary syphilis with manifestations.	581	78.1
Early latent syphilis.....	1233	51
Late latent syphilis.....	861	47
Hereditary syphilis .....	125	94.5
Cerebrospinal syphilis .....	64	47.6
General paresis .....	498	88.1
Tabs .....	216	62.66

In this compilation the figures of the different workers vary greatly, and the percentage of positive cases is considerably increased if cases having treatment are excluded.

Butler in a recent article (*Journ. A. M. A., No. 14, Apr. 2, 1910, p. 115*, under the head of Diagnosis, reports as follows:

	% Positive.
Primary stage .....	100
Secondary stage .....	98
Tertiary stage .....	90 to 95
Parasyphilis .....	75 to 80

He also states that a positive reaction has been reported by Bruck, Stern and Lesser before the appearance of the initial lesion.

The results obtained by the writer are as follows:  
I—Blood serum.

	No. Cases.	No. Positive.	% Positive.	Neg- ative.
Primary syphilis.....	4	4	100	
Secondary syphilis....	22	20	96	
Tertiary syphilis.....	26	21	82	
Hereditary syphilis....	11	11	100	
Early latent syphilis..	11	5	49	
Late latent syphilis...	20	12	60	
Tabes .....	16	13	77	
General paresis.....	5	4	80	
Cerebrospinal syphilis.	7	5	70	
For diagnosis.....	25	11	..	14

Cases from which syphilis can not be excluded as an etiological factor:

	No. Cases.	Posi- tive.	Neg- ative.
Hemiplegia .....	6	4	2
Epilepsy .....	5	3	2
Idiocy .....	3	..	3
Ununited fracture .....	2	1	1
Periostitis .....	1	1	..
Multiple sinuses .....	2	2	..
Aortic insufficiency .....	1	1	..
Aortitis .....	1	1	..
Fleeting paranoia .....	1	1	..
Melancholia .....	2	..	2
Aneurism .....	4	2	2
Arteriosclerosis .....	3	3	..
Ascitic fluid .....	1	1	..
Chronic arthritis .....	5	4	1
Diabetes .....	2	1	1
Brain tumor .....	1	..	1
Spastic paraplegia .....	2	1	1
Total .....	42	26	16

Cases of eye disease:

	No. Cases.	Posi- tive.	Neg- ative.
Interstitial keratitis .....	4	4	..
Congenital cataract .....	1	..	1
Choroid-retinitis .....	2	1	1
Optic atrophy .....	1	1	..
Central retinitis .....	1	1	..
Choroditis .....	2	2	..
Total .....	11	9	2

Cases from which syphilis can be eliminated as a factor:

Total, 75. Positive, 3. Negative, 72.

Of the positive, two were leprosy and one carcinoma. While these patients denied a luetic history, the presence of hereditary lues cannot be excluded. In the two cases of leprosy no value should be given the venereal history.

## II—Cerebrospinal fluid:

Cases from which syphilis cannot be excluded as an etiological factor:

	No. Cases.	Posi- tive.	Neg- ative.
Paraplegia .....	1	1	..
Meningismus .....	1	1	..
Tabes .....	5	3	2
Epilepsy .....	1	..	1
Hemiplegia .....	1	..	1
Total .....	9	5	4

Cases in which syphilis can be excluded:

	No. Cases.	Posi- tive.	Neg- ative.
Head injury .....	1	..	1

Pneumonia .....	2	..	2
Indefinite nerve lesion.....	1	..	1
Total .....	4	0	4

When using cerebrospinal fluid the results in the literature are again variable. Noguchi (*Serum Diagnosis of Syphilis*, p. 106) reports the result of the examination of 1082 cases in which the cerebrospinal fluid was examined and where syphilis was known to be present. He obtained a positive result in 802 cases, negative in 234 cases, and 46 indefinite. In the same article collecting from various authors he reports the examination of cerebrospinal fluid, with the following result:

	No. of Cases.	%+
General paresis .....	432	90+
Tabes .....	52	56.2
Cerebrospinal syphilis .....	34	19

A number of positive results have been reported in non-specific cases. In 86 cases of leprosy, collected from various authorities, 72.4% were positive. Positive results were also reported in scarlatina, pneumonia, typhoid fever, tuberculosis, diabetes mellitus, various tumors and diphtheria. Later reliable investigators, however, failed to get this result, nor was it stated that syphilis could be excluded from the histories of these patients. In 333 cases, in which syphilis could be excluded with a fair degree of certainty, Noguchi reports 12 positive, 313 negative, and 8 indefinite. In 132 cases, in which syphilis could not be excluded as an etiological factor, 46 were positive, 81 negative, and 4 indefinite. In 29 cases of eye disease, including interstitial keratitis, iritis, scleritis and optic atrophy, 14 were positive and 15 negative, interstitial keratitis giving the highest per cent. of positive results. The results in psychic cases are interesting. Of 334 cases of various types, 248 were negative, 45 positive and 41 indefinite, in the blood serum, and of 243 cerebrospinal fluids which were examined, 222 were negative, 12 positive and 9 indefinite. Of this number but 15 were known to be syphilitic.

A great deal of work has recently been done with a view to ascertaining the validity of Colles' law. Up to the present time conflicting results have been reported, and it remains to be seen what further investigation will bring forth.

Much has been said concerning the comparative value of the Wasserman and Noguchi methods. Howard Fox, in comparing the two methods on 210 cases, reports as follows: Wasserman, positive 118, negative 92; Noguchi, positive 139, negative 71. D. M. Kaplin reports a comparison of 1286 cases as follows: Wasserman, positive 826, negative 460; Noguchi, positive 995, negative 291. Noguchi reports a comparative study of 244 cases, with 183 positive, Wasserman, and 61 negative; 211 positive, Noguchi, and 33 negative. Summarizing, the results are as follows: No. cases, 1740.

Wasserman .... positive, 1127—64.7%; negative, 613  
Noguchi ..... positive, 1345—77.2%; negative, 395

At the University of California Hospital comparative tests are being carried on. At present it appears that the results, when using acetone insoluble antigen in the liquid state, are nearly parallel.



### Treatment.

The treatment of syphilis by mercury has great effect upon the result of the reaction. The consensus of opinion appears to be that if a positive result is obtained further treatment is necessary. In some instances it has been the experience of the writer that a small amount of mercury will cause the disappearance of the reaction, while in other instances the same amount will have absolutely no effect upon it. In hereditary lues the reaction appears to remain a great deal longer regardless of the effect of treatment. In general it can be said that a positive reaction will be obtained regardless of treatment in cases where some manifestations are in evidence. This does not hold in two cases of my series. The disappearance of the reaction a short period after treatment has ceased does not mean a cure. Lesser (*Deut. med. Woch. Berlin*, Jan. 20, XXXVI, No. 3) states that five years should elapse after the last course of treatment without obtaining a positive reaction before a cure can be assured. While this is undoubtedly a long period, it would appear that at least one or two years should elapse, during which period the reaction should be negative, before a definite conclusion concerning the presence or absence of the virus can be formed. The disappearance of a positive reaction under treatment in the early stage of syphilis should not be sufficient grounds for stopping the treatment. Treatment undoubtedly should be carried on until a negative result is obtained after repeated tests. The position of mercury as a specific even in late lues has undoubtedly been strengthened since the institution of the complement fixation reaction. Iodid of potassium and arsenic as well as other alteratives, while holding a definite place, are to be considered as adjuncts.

### Summary.

1. The Wasserman and the Noguchi methods are the more reliable of all reported, by reason of the fact that the quantities of each re-agent can be exactly determined.
- 2.—The precipitate tests are not as reliable as the complement fixation reaction.
- 3.—The value of the complement fixation reaction in the diagnosis of syphilis per se and as an etiological factor has passed the stage of experimentation.
- 4.—The reaction is of service as an index to the efficiency of treatment.
- 5.—The results of the test have proved that mercury is the main drug to be relied on during treatment of acute syphilis.

### Discussion.

Dr. Kaspar Pischel, San Francisco: The Wasserman reaction is a great help in the diagnosis of our obscure ophthalmological cases. In the case mentioned by Dr. Schmitt—a girl about 15 years old—I had treated the patient ten years ago for keratitis interstitialis syphilis, and later for syphilitic ulcers of the tonsil (congenital). Three months ago she came back with the same trouble which disappeared under inunctions. But in spite of 40 inunctions the Wasserman was positive. While in the case of interstitial keratitis we usually can prove from clinical symptoms syphilis to be the cause, in affections of the optic nerve we sometimes are at a loss to find the etiological factor. In these cases Wasser-

man reaction may give us the necessary clue. When I went to school we were taught that in beginning atrophy, even if it is luetic, mercury should not be used as it will hasten the breakdown of the optic nerve, but the sero-diagnosticians find that mercury and not iodid removes the positiveness of the Wasserman reaction. Further clinical experience will show whether energetic mercurial treatment should be adopted even in these cases. Lately I have observed in two severe syphilitic affections that the most vigorous mercurial treatment, inunctions and injections, did not give relief, while iodid caused in a few days a remarkable improvement. In both these cases iodid had been given before without beneficial effect but later after the system had been saturated with mercury, the iodid was very effective.

Dr. Spiro: According to the remark made by Dr. Schmitt, that the Wasserman is positive even before the initial lesion is present, it would seem that the infection of syphilis, being primarily a blood condition and not at first a local affair, then as it is already in the blood, we hardly need to remove the primary lesion in the futile hope of aborting the infection.

Dr. L. S. Schmitt: Only one case was reported by Butler, in which the reaction was positive before the initial lesion appeared. A number of authorities have reported positive reactions in about one week after the appearance of the initial lesion. In general it can be stated that the reaction is not reliable upon the appearance of the initial lesion unless there is a definite adenitis present.

## INSECTS AND MEDICINE—A LECTURE.\*

By CREIGHTON WELLMAN, B. A., M. D., Oakland.

Medical entomology, or rather medical arthropodology, is not a new science, but a realization of its far-reaching importance is one of the hopeful signs of the present day.

It is probable that insects were employed medically in Egypt during the most ancient times,<sup>1</sup> and several species, especially beetles belonging to the family Dermestidæ, have been found embalmed in mummies, while the traditional virtues ascribed to scarabs are yet believed in by the fellaheen.

Aristotle<sup>2</sup> mentions various insects, including beetles probably belonging to the genera *Melolontha*, *Carabus*, *Lytta*, etc., in use in his day, and in Pliny<sup>3</sup> we find remarks on a long list of species used medically or considered noxious, among which have been determined beetles (*Lucanus cervus*, Scarabæidæ, e. g. "green scarabæus" for quartan ague, *Buprestis*, *Blaps mortisaga*, etc.), crickets (*Gryllus*), bugs (*Cimex*), mosquitoes, honey bees, spiders, scorpions, etc., etc. Galen<sup>4</sup> also mentions various beetles (*Dermestes typographus*, *Scarabæus*), bugs (*Coccus*), spiders and scorpions. Discorides<sup>5</sup> speaks of a common Lepidopteron (*Papilio brassicae*) and also of grasshoppers, blister beetles (*Mylabris*), spiders, etc.

Later the Arabian physicians, notably El Scherif and El Mansuri,<sup>6</sup> frequently mention such insects as lice and bugs and developed the use of kermes (*Coccus ilicis*) for various ailments.

Still later as printing arose, while many such as Schäfer of Regensburg<sup>7</sup> still wrote much of ento-

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mological *materia medica*, attention began to be fixed more and more on clinical entomology as it may be termed. Such authors as Wietzel,<sup>8</sup> Heize<sup>9</sup> and Stentzel and Vaghi<sup>10</sup> are typical of this movement.

A great landmark not only in the history of medical entomology, but also of medical zoology, was the work of Brandt and Ratzeburg.<sup>11</sup> In these still remarkable volumes not less than 142 quarto pages and 14 beautiful plates are devoted to an admirable discussion of the medical aspects of entomology.

A number of general works on medical zoology<sup>12</sup> contain more or less complete notices of insects. A list of these would not be of particular interest and all are, or should be, easily accessible.

The most complete resume of our knowledge of insects as disease carriers is the monograph of Nuttall<sup>13</sup> which digests the literature up to the date of its publication.

A glance through the literature of the subject shows that we have had three main movements among the students of medical entomology. These may be loosely described as the era of entomological *materia medica*, the era of clinical entomology and the era of pathological entomology.

Of the first of these it will not be necessary to say anything further, as, with the exception of cantharides and one or two other remedies, we retain but few of these formerly used substances in our lists, and our interest in the subject thus becomes largely historical. Of the second subject it will be useful to speak a few words, because the conditions included are always of interest to the physician. Mention might be made of the great mass of literature on the subject of scabies,<sup>14</sup> reaching from Aristotle to our own time. The subject of myiasis,<sup>15</sup> too, has attracted attention, especially since about 1840. Records of fly larvae in the nose,<sup>16</sup> ear,<sup>17</sup> urethra,<sup>18</sup> intestinal canal,<sup>19</sup> wounds,<sup>20</sup> skin,<sup>21</sup> etc., are also interesting. Among other insects the South American and African chigger<sup>22</sup> likewise invades the human body, and probably the most formidable of all such parasites are the Arachnid *Linguatulidae*.<sup>23</sup> Considerable attention has also been directed to venomous insects. For instance, we read of severe symptoms,<sup>24</sup> new growths<sup>25</sup> and even death<sup>26</sup> following on the bites or stings of these creatures.

But the most interesting and important is what we have called pathological entomology, in other words the investigation of insects as disseminators of parasitic disease. Among such there are the midges,<sup>27</sup> which are believed to carry a recently described febrile disease. Mosquitoes have been shown to be responsible for yellow fever,<sup>28</sup> dengue,<sup>29</sup> filariasis<sup>30</sup> and malaria.<sup>31</sup> No less than 33 species are known to carry this last disease.<sup>32</sup> House flies<sup>33</sup> and their

allies have been convicted of disseminating enteric fever,<sup>34</sup> tuberculosis<sup>35</sup> and the ova of intestinal worms,<sup>36</sup> and probably ophthalmia<sup>37</sup> and other diseases. I have found motile and encysted amebæ in the intestinal contents of flies and see no reason why some of these may not be pathogenic forms, as amebic dysentery is not rare in the region of San Francisco bay and infected feces are doubtless sometimes accessible to flies. Fleas are known to transmit bubonic plague<sup>38</sup> and sleeping sickness<sup>39</sup> is spread by means of the Tse-tse flies. Kala-azar<sup>40</sup> is almost certainly carried by bed bugs. Relapsing fever is disseminated by bed bugs<sup>41</sup> and ticks,<sup>42</sup> and spotted fever<sup>43</sup> by these last named animals. Other insects have been laid under suspicion as disease carriers and the foregoing are only illustrative.

The literature of medical entomology is enormous and a catalogue of the principal titles alone would occupy more space than the columns of this entire issue of the JOURNAL. A card index of the publications which happen to come to my notice, which was begun some time ago, is growing to a considerable size.

Later we shall study in detail some of the points to-day mentioned and make for ourselves experiments illustrating their elucidation. On this occasion I shall be satisfied if I have impressed you with the greatness and significance of the problem presented.

In taking up a study of disease bearing insects we must distinguish between the manners in which various species subtend disease parasites or germs. An insect may be a mere mechanical vector,<sup>44</sup> such as fleas in the case of plague or flies in typhoid and tuberculosis, or it may act only as an intermediate host as in the case of mosquitoes and filarial disease. In other diseases, such as malaria, the insect is the true definitive host for the parasite.

It is with these principles in mind that we shall approach the questions before us. Here in the bay cities we have an abundance of material for such investigations, cases of malaria, filariasis, intestinal parasites, the various bacterial diseases above mentioned, etc., all being available.

There should be, however, a study collection of the indigenous insects of possible medical significance accessible here in California, and with the idea of founding such a collection for future students, I am sending out a request for help to the medical and other scientific men of the state. I conclude the abstract of this lecture by reprinting this circular, and I hope that all my readers will aid in this necessary undertaking:

"THE COLLECTION OF DISEASE-TRANSMITTING  
INSECTS, ETC.

"A very important work bearing upon the prob-



lem of Tropical Disease on this Coast is the determination and study of the insects, ticks and mites which are parasitic upon man and animals. In order to aid in this valuable work the undersigned will receive specimens and answer inquiries regarding these creatures. It is hoped that the physicians and entomologists of the state will co-operate by sending mosquitoes, biting flies, ticks, fleas, bugs, mites, etc., which should be prepared according to the following directions and accompanied by an explanatory letter. Collections will be immediately acknowledged on receipt. In many cases it will be necessary to refer specimens for identification to experts on particular groups, but the determinations of the species sent, with information regarding their medical significance, will in all cases be returned to collectors as soon as possible.

"DIRECTIONS FOR SENDING SPECIMENS.

*"Flies, Mosquitoes and Other Winged Insects.*—Kill with chloroform, ether, or in a cyanide bottle. Wrap each specimen rather loosely, before it dries, in soft tissue paper. Pack not too tightly in a small strong box which should be wrapped in several layers of thick paper. Avoid as much as possible handling the insects.

*"Ticks, Bugs, Fleas and Other Wingless Forms.*—Drop alive into a small bottle containing ordinary alcohol. Wrap the bottle in cotton and pack in a small strong box as above.

"Send by mail marked 'Fourth class matter.'

"Specimens and correspondence concerning them may be addressed to

"DR. CREIGHTON WELLMAN,  
"Laboratory of Tropical Medicine and Parasitology,  
31st and Grove Sts., Oakland, Cal."

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REPORT OF A CASE OF EPIDEMIC CEREBRO-SPINAL MENINGITIS.\*

By F. G. CANNEY, M. D., San Francisco.

It was with extreme gratification that I witnessed the specific action of another antitoxin, which to my mind heralded another triumph in internal medicine through the agency of the bacteriological laboratory. This time it falls to an American, Dr. Simon Flexner, to receive the great honor of making this triumph possible. No less a conservative man than Dr. Flexner would before now have proclaimed his research to the world, but he modestly awaits further confirmation.

The case I wish to report is Roy Z., act 14. The lad is an unusually robust boy, having had no disease of sufficient gravity to call a physician for several years. He had just graduated from the grammar school. His residence had been for many years past continuously in the city of San Francisco. Immediately preceding the sickness I am about to report, he had been having some dental work done, and the slight malaise of which he had complained for about one week preceding this outbreak was attributed to this cause entirely. During the night of December 23, 1909, he had had a considerable fever, judging from his reported restlessness. He had an intense desire to void urine, but was afraid to pass out of his room to the toilet, for fear of falling. He had called frequently to his aunt, but as the rest of the family had their rooms somewhat apart from his, he was not heard. He, however, finally did rise, for his aunt found him on the floor about 6 o'clock in the morning in an unconscious condition. The aunt called one of his sisters, and after great difficulty he was finally put into bed. On arriving at the house about 7 o'clock that morning, I found the lad being held in bed by main force. He kept up a continual bellowing, and cursed every person who tried to restrain him. The evident desire of the lad was to expose his sexual organs, not from any sensual desire, but probably from retention of urine he was uncomfortable. During the next twenty-four hours he avoided urine only involuntarily, which occurred several times. The lad had always been mild-mannered and well behaved, and the violent and continual cursing was in marked contrast to his normal self.

On the following morning, December 25th, he appeared rational, but the occurrences of the preceding day were a complete blank. He now complained of a severe frontal headache. The temperature by mouth was 104, pulse 120. He vomited two or three times during the day. There were no other symptoms, and those present were insufficient upon which to base any diagnosis.

On December 26th he complained of severe occipital headache, the pain extending down between the scapulae. He also presented marked retraction of the head, the pain being greatly intensified by the

\* Read before the San Francisco Medical Society, March 8, 1910.

slightest attempt to bring it forward or sideways. Kernig's sign was positive. He had projectile vomiting. He had also the following symptoms: herpes labialis, tache cerebrale, decided deafness of left ear, coated tongue, temperature 99.5, pulse 100. Inasmuch as no infection had been known to precede this outbreak, the diagnosis of cerebro-spinal meningitis of the epidemic type seemed probable. I called up Dr. Ebright, and recited the symptoms. He agreed with me upon the provisional diagnosis, and suggested that we go prepared to inject Flexner's antimeningitis serum if we should get turbid fluid upon doing a lumbar puncture. Consequently, we met December 27th and performed a lumbar puncture, obtaining as we had expected very turbid fluid. The cerebro-spinal fluid was under a pressure of 25 mm. of mercury. We withdrew 45 c. c. of spinal fluid very slowly, and thereafter injected 45 c. c. of Flexner's serum with a large Leur syringe. All the symptoms of the preceding day were present to about the same extent. The temperature was 101. On microscopical examination of the centrifuged fluid, we found large numbers of the diplococcus intracellularis, which were Gram negative. There was at this time a leucocyte count of 14,200 per cu. m. The differential count showed 90% of polynuclears. On December 28th we met in consultation, and some amelioration of the symptoms of the preceding day were found. He had had a somewhat better night. The headache was considerably better. He felt hungry. Temperature was 99.5. We withdrew 30 c. c. of spinal fluid and injected 45 c. c. of Flexner's serum. At this operation, the cerebro-spinal fluid was under considerably less pressure than the preceding day. On December 29th the lad felt much more comfortable, the spasticity of the muscles having relaxed to some extent. The temperature was normal. The deafness seemed less. Sleep on the preceding night had been more restful. In general, he felt much better. The Kernig symptom remained the same. We decided to await developments in regard to administering more serum.

December 30th, the patient felt far more comfortable; he had had a good night; headache was gone; the spasticity was somewhat less; appetite was good, and he felt fine.

December 31st the headache again returned and the temperature rose to 102. The symptoms were now about the same as at the time of the first injection. I asked Dr. Ebright to procure more serum, and January 1st we met again and withdrew 45 c. c. of turbid cerebro-spinal fluid, after which we injected 45 c. c. of Flexner's serum, this time introducing it simply by gravity, using a small funnel. The temperature this morning was 101. Quite a considerable aching in the thighs and head usually resulted from the injections, these symptoms lasting one or two hours. The pressure of cerebro-spinal fluid was at this operation 15 mm. of mercury.

On January 2d the patient felt very much better; the headache had gone and the temperature had declined to 99.2. We withdrew 45 c. c. of turbid spinal fluid and injected 30 c. c. of Flexner's serum. It was remarked daily that the turbidity of the cerebro-spinal fluid was decreasing.

On January 3d we found normal temperature and pulse. The spasticity was slightly improved, but there was still very marked retraction of the head. The Kernig sign remained about the same.

On January 4th there were normal temperature and pulse. Lumbar puncture was performed, and we withdrew 40 c. c. of clear spinal fluid, which gave negative growth on culture media. We injected 30 c. c. of Flexner's serum. The Kernig symptom remained the same.

January 5th, we found normal temperature and pulse.

January 6th an urticarial rash appeared on several parts of the body, but only lasted about forty-eight hours. From now on there was a gradual recession of all symptoms. For some time after he had quite a marked dilatation of the pupils, so as to be quite unable to accommodate for any close reading, but

are now normal. There is still some slight deafness in the left ear, but he states that he thinks it is improving. He is otherwise entirely normal. I used 30 grains a day of hexamethylenamin for about a week after discontinuing the serum as a disinfectant of the spinal fluid.

We injected in all 195 c. c. of Flexner's antimeningitis serum in five sittings, and after each injection we noted very decided improvement. The result was decidedly gratifying, and in review of the case I am impressed that the positive antidote of diplococcus intracellularis toxin was being used and was acting just as decidedly as could be seen in diphtheria when using antidiphtheretic antitoxin.

### RENAL TUBERCULOSIS.\*

By GEORGE S. WHITESIDE, M. D., Portland, Oregon.

In presenting to you such a hackneyed subject, I would call your attention to the fact that in consequence of the effort to be original and present unusual or novel ideas, nowadays, we often forget that what is common rather than rare, what is routine rather than new, what is accepted practice rather than original research, may be a useful subject to occupy our minds.

The brilliant investigations and startling innovations in medicine mean progress, but after all the work of the world depends upon the intelligent and skillful handling of routine problems. I believe also that individual experience in practice deserves expression in papers before our medical societies. Medicine is not yet an exact science and the pictures of disease in its common forms are differently interpreted by each of us. It is occasionally good to exchange ideas that bring out these differences of opinion in regard to both theory and practice.

In the very common form of visceral tuberculosis which I wish to consider to-day, much has been done of late years tending toward accuracy in diagnosis. The cystoscope and ureter catheterization have replaced the trocar in giving us an easy, sure and harmless method by which the excretory effort of the kidney in question may be judged. I will not waste your time by describing methods which, having overcome the prejudice that existed against them ten years ago, are now considered essential to a proper investigation of any surgical kidney affection. I believe to-day it would be considered as careless of the best interest of our patient not to obtain the separated kidney urines and investigate the functional possibilities of each kidney before beginning treatment of a tubercular kidney as it would be to try to treat a case of pulmonary phthisis without auscultation of the chest. I think those few who might deny that such is the case place themselves in the small class of practitioners who do not use the microscope or the clinical thermometer.

On the other hand many extravagant claims have been put forward for the special diagnostic method of ureter catheterization which tend to discredit its general applicability. It is not advisable for the general practitioner to attempt to practice it. The instruments are expensive and fragile. Their use requires constant practice. The interpretation of

\* Read at the annual meeting of the Pacific Coast Branch of the American Urological Society and the California State Society, April, 1910.



the results obtained requires a large special experience just as truly as does the interpretation of the results of the use of the X-ray. Ureter catheterization and cystoscopy by an expert often, but not invariably, reveal much valuable accurate information in renal cases, and just as truly often lead to misinformation in the hands of the novice or inexperienced. However, the experts should be careful not to claim more than is reliable and true. For instance, at the meeting of the American Urological Association at Atlantic City in 1909, I heard it stated, by a very enthusiastic diagnostician, that if a quantity of normal salt solution were injected through a ureter catheter into the renal pelvis any quantity less than 30 c.c. which seemed to fill the pelvis proved no dilatation, and any possible more than 30 c.c. showed an abnormal capacity proving hydro or pyo nephrosis. I wish this degree of accuracy were possible, but I believe adherence to any fixed rule will surely lead to frequent error. Many kidneys are somewhat dilated or dilatable without interfering with a practically normal functional ability. One should not claim too high a degree of accuracy in this method of diagnosis. Another method of determining the capacity of the renal pelvis is by the injection through the ureter catheter of a strong solution of argyrol or of a suspension of subnitrate of bismuth, and then an X-ray plate will show the relation of the metallic solution in the pelvis to the entire kidney. This method often reveals the extent of destruction of tissue in renal tuberculosis and so checks our estimation of the functional ability of that kidney by the phloridzin method.

In renal tubercle it is often impossible to demonstrate the bacilli under the microscope. Pus is apt to be abundant and often blood, mucous and the detritus thrown off by the disordered kidney conceals the micro-organisms which are present, rendering their detection difficult. In such cases guinea pig inoculation is an invaluable aid. In very early cases where the urine is abundant and contains few bacteria a guinea pig inoculation will frequently give us the only positive evidence of beginning disease. Other diagnostic methods are familiar to genito-urinary surgeons and general practitioners alike. The acid, purulent urine, the renal enlargement, which can often be demonstrated, the pyrexia, chills, loss of weight, sweats, etc., etc., are the ordinarily accepted symptoms present in this disease.

Let us remember how very common renal tuberculosis is and be constantly on the watch for it, either as a primary localized infection or as secondary to disease elsewhere. An early diagnosis will save many a patient. In the very early cases tuberculin should be tried in treatment. I have repeatedly called attention to the observation that if the bladder is also affected so that we have irritation of its neck, as shown especially by frequency of urination, then this symptom should be used as an index guide while administering tuberculin for treatment. After an overdose vesical irritation is worse and after a proper dose it is greatly relieved. Also when a proper dose has been given and has produced the expected improvement in this way you will find that after a few days the original symptoms of pain and frequency begin to again obtrude themselves upon

the patient's notice. Then it is time to repeat the dose of tuberculin. This is a much more accurate guide than the opsonic index and one more easily followed by the busy surgeon. If no vesical irritation exists (which is unusual) then the temperature, pulse, urine and weight charts are our best clinical guides to aid us in both time and quantity of tuberculin dosage.

In regard to the particular form of tuberculin to be employed I myself have had surprisingly good results with Koch's O. T. In fact, I prefer it for general use, although the B. F. seems more mild and efficient in some cases.

As I have said, very early cases may try tuberculin treatment, but do not make the grave mistake of losing valuable time in those early cases where tuberculin proves inefficient. In these and emphatically in more advanced cases operation is the method of choice. I am sorry to acknowledge that this is the case. I believe strongly that destructive surgery is a confession of our limited knowledge. It would be better for the patient to be cured of disease without the loss of so important an organ as the kidney, but unfortunately our present skill is still inadequate. Radical operation on the kidney which has been proved to be the more diseased of the two (in bilateral infections), or the only diseased one (in unilateral cases), is still the method that gives us best results. Nephrectomy has saved many valuable lives, even in cases where there is bilateral disease. In a case I operated upon in July, 1907, both kidneys were tuberculous, the left one produced nothing but thin pus through the ureter catheter. Nephrectomy was immensely successful. In the following six months the patient gained 50 pounds in weight and recovered her health and strength. Since then she has had two slight periods of upset from the infection of the remaining kidney, but the cautious administration of tuberculin for a few weeks has so far averted any serious consequence. I have had a number of other cases in which the result has been perfectly satisfactory. In many of them there is, however, still a small quantity of pus in the urine and the bacillus coli seems to be the offending germ. I have used the stock B. coli vaccine with good temporary results in several cases. In others I could get no improvement until I used an autogenous vaccine prepared from a culture taken from urine obtained by a ureter catheter. In a small number of cases (three in all) tubercle bacilli still persist in the urine from the remaining kidney, and tuberculin treatment proved to only partially control the condition.

In any case where there is a very slight sediment in the urine, which contains mostly pus, and B. Coli infection is proved, it has been my experience that the vaccine treatment will never eliminate the last traces of pus from the urine. Washing out the renal pelvis with argyrol or cagentos is too hazardous a procedure when there is but one kidney, unless it becomes absolutely imperative. It should not be lightly considered as only of equal risk in these cases as it is in individuals who have two kidneys.

In nephrectomy for renal tuberculosis do not make the mistake of trying to operate through too small an incision. I prefer to begin at the twelfth rib and

cut through all structures to the post peritoneal space by a long incision which follows the line of Poupart's ligament to the spine of the pubes. It takes no longer to heal and I have used this incision for years without, to my knowledge, a hernia afterward. Once I operated on a young man with this incision in the spring of the year, and the next fall he played football without a symptom or a bad effect of any sort.

The most troublesome feature of nephrectomy for renal tubercle is apt to be a fistula or sinus leading to the stump of the ureter. I have had a few very persistent cases of this sort, but latterly I have practiced removal of almost the whole of the ureter with the kidney. Since adopting this method, I have been more fortunate in regard to fistulae. I put it this way because I know some of my friends in this association differ with me in this. They assert that a ureter cut very low down near the bladder will often leak urine, infect the cellular tissue and be the nidus for a bad chronic sinus, discharging pus or urine or both. This has not been my experience. I try to close the ureter and also try to draw neighboring tissues over the end of the stump to adhere to it and so prevent leakage. Up to now I have been successful, but I presume some day a bad sinus will prove to me that the conclusion of the majority in this is the best rule to follow.

To sum up then, I would say: Investigate thoroughly, using every means at our command for an accurate diagnosis. In very early cases use tuberculin for a short time to give them a chance to avoid operation, but be careful not to jeopardize their ultimate recovery by trying this too long in those cases which do not immediately favorably respond to tuberculin treatment.

Operation has a low mortality. In fact, it should have none at all, as it is usually possible to avoid shock, sepsis and hemorrhage, which are the three dangers. Operation is often brilliantly successful in its outcome and usually removes so much disease that the patient's natural resistance can take care of what remains. I have had two deaths months after nephrectomy from phthisis pulmonalis. It seems to me these cases simply demonstrated the value of an earlier diagnosis.

## THE CO-OPERATION OF SCHOOL HEALTH DEPARTMENTS WITH OTHER HEALTH AGENCIES.

By ERNEST B. HOAG, M. D., Berkeley.

Medical supervision of schools is rapidly becoming an increasingly important factor in modern education. The necessity for such careful supervision of the health and development of school children is no longer an open question.

Only the most unprogressive communities now oppose this sort of work, and only *careless* communities fail to avail themselves of its advantages. No school can to-day claim an important place in modern educational progress which ignores or neglects the health conditions of its pupils. Like most

other new developments, school health supervision methods have evolved from very small, unorganized beginnings. As in most other projects, one community learns very little from others, but each attempts to work out its own problems, thereby falling into the same errors, confronting the same difficulties, and wasting about the same amount of energy. We have to-day no *standardization* of methods, and endless useless discussion results from this fact. In the light of the experience of many progressive cities such standardization in essential matters might now be rather easily established, thus saving an enormous amount of time and energy to towns and cities which wish to inaugurate this work. This paper proposes to discuss only one phase, at this time, of such a standardization.

Most communities have in existence one or several sorts of health organizations, but few of them have attempted to *correlate* the work of these various health agencies. A concrete example of what may be accomplished by such useful correlation is furnished by the city of Berkeley, California; and for this reason this will be presented as typical of what may be done in many other places.

Health supervision was only organized in Berkeley one year ago, and the usual difficulties have had to be met. A good Board of Health is, of course, in existence, and it employs a Health Officer who devotes part of his time to the city work, receiving for this service the moderate compensation of about a thousand dollars a year.

Since the great San Francisco fire of 1906 a small medical clinic or dispensary has been in operation under the direction of three physicians. For several years the Berkeley Charity Organization has also been in operation, under a Board of Directors which employs a secretary and visiting nurse. The medical dispensary was situated on the west side of the city near the manufacturing district, and consequently among the homes of the foreign element. The Charity Organization was situated near the business center.

The Medical Director of Schools was elected by the Board of Education at a reasonable salary to devote the entire school day (from 9 a. m. to 3 p. m.) to the health work of the schools, and was given a suite of offices in connection with the rooms of the Board of Education. An arrangement was made whereby the Charity Organization nurse should devote one-half of her time to that agency and one-half to the city's schools.

It soon became clear that the four health agencies in Berkeley, viz., the City Board of Health, the Berkeley Charity Organization, the West Berkeley Clinic, and the School Health Department were wasting considerable time, energy and money. To correct this condition the following plan was carried into effect:

1st. The rather inadequate Clinic was, after much discussion and with some difficulty, reorganized with a staff made up of fifteen representative physicians, instead of the former small and somewhat exclusive staff of only three.

2nd. The Charity Organization, which had been none too friendly toward the Clinic and had consequently sent many cases to the clinics of the neigh-



boring city of Oakland, was induced to join hands with the new Berkeley Clinic. To this end a large dwelling-house near to both the school and city health departments was rented, and these two rival health organizations established under one roof, thus saving much money in rent, much time and energy, and resulting in common rather than separate efforts toward raising means for support.

3rd. The Alameda County Dental Society now organized two Dental Dispensaries, one for Oakland and another for Berkeley. By means of a theater party and through private contributions of the dentists themselves, sufficient means were secured to completely equip in the most modern fashion these two dental dispensaries. The Berkeley Board of Education at once offered co-operation with the Berkeley Dental Dispensary by placing at its disposal offices in connection with those of the Medical Director of Schools. I.

4th. The City Health Department has closely associated itself with all of the above health agencies and is co-operating in every possible manner.

The result of the combination thus described is that all of the health agencies, including the School Health Department, the City Health Department, the Charity Organization, the Medical Dispensary, the Dental Dispensary are now located within one block of one another and are combined under three roofs instead of five.

A city Charity Commission has recently been appointed by the Mayor and this, too, will be closely associated with the agencies just named. The Red Cross will also unite their efforts with the others. Within a few months Berkeley will, therefore, have succeeded in uniting toward one common end the efforts of the following health agencies:

1, The School Health Department; 2, the City Health Department; 3, the Charity Organization; 4, the Medical Dispensary; 5, the Dental Dispensary; 6, the City Charity Commission; 7, the Red Cross Society.

What has been done on a small scale in Berkeley, the State Board of Health and State Medical Society have done on a much larger one. At the last meeting of the State Society and Public Health Association, the "California Public Health League" was formed. This will as far as possible unite the efforts of every organized health agency in the state, including "The Society for the Prevention of Syphilis and Gonorrhea."

The School Health Department in Berkeley feels that its efficiency has been increased many fold through the co-operation just described. It has devised a system of records which is simple, yet complete. Every school case cared for by any one of the health agencies is reported by card to the office of the Medical Director of Schools. The School Nurse keeps an accurate card record of every school home visited. *No case is entitled to medical or dental treatment which is not first recommended by the Charity Organization.* An Advisory Health Committee of fifteen physicians has been appointed by the Board of Education to aid the school physician in his work. A Lecture Staff of six physicians, dentists and nurses has been organized to give lec-

tures on various health topics at three different centers for the benefit of parents and school children. A woman physician has been added to the School Health Department organization, who will teach hygiene in the High School and assume charge of the health supervision of all of the girls. What has been rather easily accomplished in Berkeley by the School Health Department and allied health agencies in less than a year can be done in almost time, thought, money and energy.

1 Since the opening of the dental dispensary in June, between fifteen and twenty children per week have received attention here.

## A BRIEF ACCOUNT OF LUDWIG PICK'S WORK ON CHORION EPITHELIOMA.\*

By DAVID HADDEN, M. D., Oakland.

Of all the men I met in my journeyings across the water there are two whose character and work stand out most prominently. One of them in London advocates somewhat new and radical methods of plastic Gynecological Surgery; the other a teacher of pathology in Berlin. So when the program committee asked me to give you this evening an informal talk on some aspect of Gynecology in Europe as it appealed to me I felt I could not do better than bring to you a brief account of some of the work of this second man, Professor Doctor Ludwig Pick.

If you have never met Prof. Pick you would do well to read what Thompson of St. Louis says of him in his "Glimpses of Medical Europe." Prof. Pick is I think the only man I met of whom I heard no one say a disparaging word. On asking advice from various men in Berlin as to where to go for Gynecological pathology I was invariably told that Ludwig Pick was the best teacher of pathology in Berlin, if not in Germany.

I called on him the morning after my arrival at his laboratory "at the head of the four flights of stairs" and found him giving a course in general pathology to two New York men. He greeted me in English asking if that was the language I spoke and what he could do for me. He did not think that two to three weeks was sufficient to do much in gynecological pathology, but I told him it was not an altogether unknown subject to me and that I wanted some of his original work. He made an appointment with me for that evening in his rooms and when I reached there at the appointed hour his first question was not about pathology but about the condition of San Francisco. I had to tell him of the fire, of the rebuilding of the universities, the medical colleges, of the standing of the men who had been to him for instruction from this State. He spoke as did so many others of the excellent type of physician that is turned out from our local colleges.

The next morning at 7:45, and each morning thereafter including Sundays, he gave me in an hour enough work to keep me busy all morning. He showed me many interesting things in his wonderful pathological collection,—a collection any college would be proud to own. Cases of bilateral involvement of the ovaries in carcinoma of the stomach

\* Read before Alameda County Medical Society, April 12, 1910.

through retrograde lymphatic circulation, death caused by the stomach condition being unrecognized at the time of operation. He proves the primary growth to be in the stomach by the character of the ovarian metastases. He showed me specimens which exhibited the existence of both ovarian and testicular tissue in the same individual,—a true hermaphrodite. But his work in chorion epithelioma in the male and female and its relation to dermoids, or teratomata as he insists, since they contain other than skin structures, will probably be of most interest to you to-night.

The most frequent occurrence of this type of malignant tumor is in the woman who has recently been pregnant. The first symptom is usually the persistence of hemorrhage for weeks after a completed miscarriage or normal delivery. Chorion epithelioma, wrongly called placentoma, for according to Pick it has nothing to do with the placenta, is perhaps best understood if we go back to the normal structure of the chorion and its relations to the foetus and mother. The impregnated ovum, on reaching the uterus, simply sinks into the modified mucous membrane of that cavity contrary to the old idea of enfolding. The villi develop equally on all sides but, as time goes on, those toward the uterine wall develop more individually and become the so-called *chorion frondosum* or "little placenta" and there the cord is attached; the rest of the mucous membrane of the uterus supports the ovum and, as the foetus grows, the villi outside the placental site thin out by pressure and become the membranes.

The villi histologically consist of two layers of cells surrounding connective tissue in which run the blood vessels. The two layers are formed by the folding of the ecto and endoderms that go to develop the foetus. The outer layer is of ill-defined cells, having no regular cell outline, known as syncytium. The inner layer consists of sharply defined cells and regular nuclei; these are known as Langhan's cells. The relation of the layers is characteristic of chorionic villi. The villi are constantly bathed in mother's blood and the buds that spring from them are often washed off into the portal circulation.

The mucous membrane of the uterus undergoes changes which do not vary whether the foetus is in the uterus or tube. The normal mucous membrane shows compound tubular glands surrounded by stroma containing round and filiform cells. In pregnancy these round cells increase six or seven times in size, press on the glands, obstruct their exits and retain the secretions, and thus produce large lacunar cavities, in the deeper—parts not to be diagnosed as pathological. These same round cells invade even the muscle structure and destroy it. Now between the villi of the foetus and the mucous membrane of the mother's uterus Mrs. Nitabuch demonstrated a layer of fibrinous structure but Pick demonstrates the penetration by the cells of Langhan and larger wandering cells, probably of Langhan or syncytium origin. The same penetration process of the foetal structures takes place in tubal pregnancy and finally causes rupture of the tube wall.

Thus in pregnancy we have always the possibility of a chorion epithelioma developing always for in the uterine wall and over the whole body by the penetration of the blood stream, we find the foetal elements in the shape of villi structures and wandering cells. In normal conditions the foetal elements probably do not reproduce themselves and are quickly destroyed by the mother's cells, but in the chorion epithelioma they do and Pick thinks that "wandering cells" may produce villi characteristics, of Langhan and Syncytium, or vice versa.

The hydatid mole, myxoma chorii of Virchow, is frequently found the forerunner of chorion epithelioma. Microscopically the hydatid mole consists of: (1) Langhan's cells, (2) Syncytium, (3) necrotic elements, due to insufficient blood supply, (4) loose elements, due and blood vessels as in villi, (5) spaces filled with myxomatous tissue. Being then of such structures it must always be associated with a pregnancy. All these structures we find in chorion epithelioma but associated with blood vessels and blood clots. "The chorionic villi hunt blood as a magnet hunts steel" and the invasion of the blood vessels by the growth gives us what is characteristic of chorion epithelioma, the hemorrhagic elements. Because of the foetal elements being carried by the blood stream we can find chorion epithelioma in any part of the body as a primary growth and in like manner we get metastases.

Chorion epithelioma comes then some few months after pregnancy of any form, forms a primary growth and metastasis over the body, all growths having the gross appearance of blood clots and composed of elements of the structure of the hydatid mole. The varying elements and the predominance of one, as frequently happens, may lead to a mistaken diagnosis of carcinoma or sarcoma. Pick says the prognosis is made post mortum, for many cases get well, the mother gradually overcoming the foetal elements. And frequently in cases of continued hemorrhage he has found wandering cells in the mucous membrane of the uterus which have gradually disappeared and the woman has been restored to health.

But how does chorion epithelioma occur in the male? Dermoids, or more correctly teratomata, are found as cystic and solid tumors; the best variety of cystic occurs in the ovary, of solid in the testicle.

Pick washes out the cavity of the cyst, finds a circumscribed cone on the inner surface which he sections longitudinally and thus demonstrates all forms of body structure. He shows the transition of the stratified squamous epithelium to the columnar ciliated epithelium, as found in the mouth and trachea, with the adjoining cartilage of tracheal structure. He shows the pure mucous gland structure of the sublingual, the mixed type of mucous and serous of the submaxillary; the normal thyroid structure, and the muscle arrangement and solitary lymph nodes of the large intestine; the nerve elements in both brain and spinal cord. In many dermoids one element will predominate and he points with great pleasure to a case of solid tumor in the testicle, made up mostly of nervous



tissue elements, in which the peritoneum is covered with metastatic nerve elements, diagnosed as tuberculosis. He finds the solid tumors show more proliferation of one element, less differentiation and are more malignant. He can demonstrate to you all the structures of the body in one cyst and asks you to take nothing for granted.

He says: "The fellows laugh at me; they say I see visions and dream dreams, but let them come here and I will show them. But they do not come. Can I not show them Herr Collège?" And surely he can. He argues that if all the elements of the body are found why not the villi also, and, while he has not yet proven the presence of the villi in the cysts, he has demonstrated chorion epithelioma in both females where pregnancy has never occurred and in males associated with teratomata. He has also shown that the age of the dermoid always corresponds to the age of the individual containing the growth, for in teratoma in a child we find milk teeth, in teratoma in an adult the permanent set.

Teratomata are therefore consanguineous and thus he argues that we each have our twin, if not born with us at least somewhere in our bodies. This shows that one form of tumor is inherited or rather that the germ of tumor is implanted at birth. Chorion epithelioma after pregnancy is then a condition of descendency. Without pregnancy a condition of consanguinity. In the male of course it is always consanguineous.

### A STUDY IN HEART TONICS.\*

By W. E. BATES, M. D., Davis.

While therapy as a science has not kept pace with pathology and diagnosis with our modern clinical appliances for accurate determination of both systolic and diastolic blood pressure, the field of cardiovascular therapeutics is gradually being placed on a firm scientific basis and there is a well grounded saying that a skilled physician can be told from an unskilled by the way in which he gives digitalis.

The drugs at our disposal for the treatment of cardiac diseases we find classified in two great groups:

(a) Those that act chiefly on the heart as digitalis and strophanthus, and

(b) Those whose chief action is on the vessels, namely the vaso constrictors, (adrenatin, camphor, caffein, and strychnin) and the vasodilators (nitroglycerin and the nitrites and alcohol).

In making such a division we must bear in mind, however, that they are all cardio vascular drugs affecting both heart and blood vessels in varying degrees.

We will take up group (a) for consideration today.

Of the group of remedies acting principally on the heart, digitalis readily leads in interest and value. Since Traube's time it has been a disputed question whether digitalis acts principally on the heart or on the blood vessels, and whether the increase in blood pressure is chiefly of cardiac or of vascular origin. The recent work of Gottlieb and Magnus, now generally accepted, shows that the chief action is on the heart, the rise in pressure being due to more complete systole with a consequently greater flow of blood into the aorta. Its vascular action being chiefly a constriction of the splanchnic arteries, with dilatation of the peripheral vessels, including those in the brain, due partly to increased pressure exerted on the interior of the vessels but mainly ascribed to a reflex stimulation of the vasodilator center arising from a constriction of the splanchnics. The various active principles have a somewhat different effect from the crude drug. Digitalis is one of the most unreliable of preparations, owing to the different strengths met with. The tincture, physiologically tested and standardized, and the infusion are the best preparations. Digitalin of some manufacturers will give satisfaction after learning the dosage of a given make. Personally I have used for a number of years Merck's digitalin in doses of 1/16, 1/8, 1/4, and even 1/2 grain t. i. d. Whichever preparation is used, it is best given in small doses gradually increasing the amount until full physiological action is reached. In this way the heart is not suddenly stimulated beyond its strength. Over action of the drug is manifested by the heart beating too slow, or too rapid and irregular; by a full tight feeling in the head or by a lessening of the amount of urine secreted.

In the use of digitalis we must remember that marked increased systolic output does not necessarily mean increased blood pressure, for the reason that an increased ventricular contraction is associated with lessened engorgement of the right heart and the better emptying of the veins, thus lessening the peripheral resistance to the arterial blood.

Colbeck in the *British Medical Journal* says that digitalis should seldom, if ever, be given in cases of aortic regurgitation which has developed during or after middle life, since the ventricular wall is seldom perfectly sound under these conditions; and never in patients who give evidence of myocardial degeneration or disease. If complete rest is obtained, digitalis is permissible and beneficial up to a certain point in young, otherwise healthy, adults showing signs of circulatory failure, more especially when the aortic lesion is combined with mitral incom-

\* Read at a Meeting of the Yolo County Society for Medical Development.

petence. The drug should be discontinued for some time before exercise is resumed, and this rule should be rigidly observed. Neglect of this precaution might be followed by rapid failure of the ventricle and sudden death. Theoretical consideration would suggest that the utility of digitalis in aortic incompetence is strictly limited. It may be accepted as a good working rule that digitalis is beneficial in cases of aortic incompetence proportionally to the magnitude of the stress which has led to failure of the heart, and vice versa. Colbeck states that digitalis is contraindicated in aortic stenosis apart from appearance of cardiac failure. He indorses the use of digitalis in cases of mitral insufficiency, but in mitral stenosis he says that it can be of no benefit in the absence of failure of the right ventricle, and in this event, so long as the pulmonary blood pressure has been raised to the point at which the maximum change of blood will be delivered to the left ventricle, the drug will again act prejudicially.

Friedlander in discussing the action of the various heart tonics in the *Therapeutic Monatshefte*, defines the indications for the use of digitalis very concisely when he says it should be used in cardiac defects and heart weakness in young people and digitalis plus caffein in heart defects of older persons and in extensive congestions.

According to Hay, the recent discoveries in regard to the contraction of the heart and the introduction of the myogenic theory of stimulus therefor, emphasizes the importance of the condition of the myocardium in all cases of heart failure, and less stress is being laid on the nature of the coarse anatomic lesion. Hay discusses the relation of the digitalis group to the treatment of cardiac disorders. Depression of tonicity, particularly, is an indication for the administration of some member of the digitalis group. Dilatation of the heart, hemic bruits, pulsations in the veins of the neck, are all evidences of lowered tonicity. This indication holds, irrespective of valvular lesions. The group also renders the systole more effective. Hay is convinced that the tendency is to be satisfied with too small doses of digitalis and squills. He believes that when we are sure that these drugs are called for we should push them until we get the result aimed at or until we get signs of physiological action. In urgent cases he believes in giving one or two very large doses of tincture of strophanthus (15 minims) every other hour for a few hours, combined with a similar dose of digitalis or squills, the digitalis or squills to be then given alone. Morphin he considers almost invaluable in the treatment of heart disease in steadying the heart and in the treatment of dyspnoea associated with either a raised or lowered condition of blood pressure. Where there is chronic nephritis

the causation of the dyspnoea may be in doubt; but for Hay that does not matter, for the "old bugbear" of the danger of morphin injections in nephritis is dead, and opium may be given, in his opinion, when the symptoms demand it.

#### STROPHANTHUS.

Strophanthus runs a close second to digitalis in value, in the treatment of heart disease. Its best preparations are the tincture and alkaloid strophanthin. The pharmacology of strophanthus indicates that it has certain advantages over digitalis, and careful clinical observations have sustained the view of the pharmacologists that it has a distinct field of usefulness. Owing to our German confreres finding the tincture to be very unreliable, the average practitioner but seldom uses it. It has been found, however, to be surprisingly uniform in this country when made by our best manufacturers.

Another serious disadvantage common to strophanthus and digitalis has been the want of a soluble active principle suitable for hypodermic use. This want, at least to the extent of the pure active principle, has been supplied in the crystallized strophanthin of Thoms. There are four principal preparations of strophanthus used. The tincture, ouabain, which is the most toxic of its principles; strophanthin, which is methyl ouabain and about one-half as toxic, and acocantherin, which is dimethyl ouabain and is one-quarter as toxic.

Strophanthin given intravenously is now being quite extensively employed throughout Europe. Danielopolu in *Archives des Maladies du Coeur*, Paris, reports having given intravenous injections of strophanthin in 23 cases of heart disease, including 6 with myocarditis with or without asystole, 8 with mitral affections, including some with myocarditis, 3 aortic lesions and 3 cases of asystole with empyema.

The results encourage him to affirm that strophanthin deserves to rank as one of the best heart tonics, not only for the rapidity and energy with which it acts on the heart but also by its influence in remedying the disturbances due to impairment of the heart action, the accurate dosage and its action exclusively on the heart. He uses  $\frac{1}{64}$  gr. at a single dose, not repeating oftener than once in twenty-four hours. "It acts more rapidly than any other heart tonic," he says, "strengthening the contractions, slowing the pulse, raising the arterial tension and making the heart beat more regular, while the urine is notably increased and edema soon subsides as also the passive congestion in the viscera. These effects are especially marked in heart affections without advanced kidney lesions."

Stark announces that intravenous injection of strophanthin allows the drug to act almost exclusively on the heart, while the dosage can be almost mathematically exact, and the effect on the heart is always amazingly prompt and powerful. Tests with it on animals and in the clinic have shown that this technique far surpasses all other methods in its



rapid and energetic tonic action on the heart. He gives the details of seven cases in which it was used. No bad effects were ever noted, although as much as 2.25 mg. was injected in one case in the course of three days. The average dose was 1 mg., never more than 1.25 mg., at a time. The pulse changes almost at once after the injection, approximating normal characteristics, as also the heart and lung action. One patient was in such an advanced stage of pulmonary edema that the strophanthin was injected as the last resort for an apparently moribund patient, but the injection of 1 mg. of strophanthin induced prompt relief, freeing the lungs and raising the output from 700 to 3000 c. c. in twelve hours; in another case the urine increased from 300 to 3000 c. c. in twelve hours. The results were better in the chronic cases. He affirms that his experiences seem to indicate that strophanthin is less toxic than has been hitherto supposed.

Lewin has been studying certain arrow-head poisons used in Africa and has found that the active principle of *Acocanthera Shimperii* and *A. Deflersii* has a marked action on the heart, acting in the same way and ranking with digitalis. Its advantage is that the active principle, ouabain, seems to be very durable, as the amount used has been extracted from wood that has been out for years. It has the further advantage that it can be injected subcutaneously without by-effect. Hediger reports in detail a number of cases confirming the good effect of strophanthin given intravenously, one case, in particular, of chronic cardiac insufficiency which was kept under control with twenty intravenous injections of strophanthin in three months.

## MULTIPLE PAPILLOMATA OF THE URETHRA.\*

By LOUIS GROSS, M. D., San Francisco.

Text-books on genito-urinary diseases have little to say on papillomata of the urethra. Although this affection is not uncommon, it is infrequently recognized.

The cause is venereal infection with gonorrhea or syphilis, usually the latter. They grow rapidly under conditions of moisture. Oberlander doubts gonorrhea as a cause, Ousset, quoted by Fluss<sup>1</sup> claims tuberculosis as an etiological factor.

Oberlander has described a papillary overgrowth, "urethritis papillomatosa," which takes place upon the areas of infiltration found in chronic urethritis.

The *site* of predilection is the region of the external meatus, although they may occur anywhere in the urethra as far as the bladder neck. While their tendency is to extend along the inferior wall, no part of the urethral circumference is exempt.

The *diagnosis* can only be made by the endoscope, unless the papillomatous growth project from the meatus. The *symptoms* are usually trifling in character, a slight serous or sero-purulent discharge, rarely hemorrhage although Briggs<sup>2</sup> reports a case with bleeding after coitus. In many cases there are symptoms of stricture, such as diminution in the size of the stream (Roger), twisting and forking

(Feleki),<sup>3</sup> painful erections, pain with urination (Ousset, Rosenthal), difficulty in passing urine, urinary incontinence and urinary retention (Grunfeld). It has been mistaken for stricture (Briggs). In women, pain and bleeding after coitus, pruritis (Grunfeld, Dittel, Gregoire), and symptoms of cystitis, strangury (Thompson) exist. Both Balch and Grenaudet report cases with seminal losses and nocturnal emissions whilst Feleki cites cases with bloody seminal discharges. Goldenburg mentions a case of seminal retention due to a papilloma of the deep urethra. In one case Oberlander restored potency through removal of this character of growth from the prostatic urethra. As a rule the symptoms are more severe in the female and in cases of involvement of the deep urethra in the male. Undoubtedly many individuals are treated for chronic urethritis and stricture who have papillomata of the urethra.

*Prognosis*—Very few cases recur. In Briggs'<sup>2</sup> case the growths had not reappeared in 7 months. Oberlander<sup>3</sup> cites a case of 20 years' duration. Keyes<sup>4</sup> says the malady may last indefinitely, individual growths disappearing to be replaced by others. Gregoire<sup>5</sup> claims it reproduces itself 3 or 4 times; Tillaux says as many as 8 times. Lohnstein<sup>6</sup> says if the growths return, they do not recur at the same sites.

*Treatment*—They may be removed with curette, snare, forceps, or cautery. An effective procedure is with a pair of forceps patterned by Down of London. In my hands Dittel's forceps were useless. One is unable to accomplish very much in one sitting on account of the bleeding, therefore the work must be done at different sittings. To avoid hemorrhage Oberlander suggests the following technique:—"having introduced the endoscope to the seat of the growth, two tampons are passed down, one after the other, the endoscope is partially withdrawn, and the two tampon holders are pressed against each other. The penis is stretched and the tampons, by an up and down movement, or slightly twisting motion, ought to catch and pull off the growths." I judge this method to be only useful in cases of recent origin. In my hands it was unsuccessful.

Lohnstein<sup>6</sup> used a double curette which was discarded as it caused considerable destruction of the urethral mucosa and hemorrhage. He then applied a single curette attachment to the Goldschmidt urethroscope, which permitted control of the cutting surface, with correspondingly better results.

Mark<sup>7</sup> claims his maneuver possesses the virtues of simplicity, efficacy and accuracy. He uses his aero-urethroscope, after preliminary cocainization of the urethra. "When a growth is observed projecting into the lumen of the inflated urethra, the urethroscope is directed against it and with a quick movement, under the guidance of the eye, the tube is pushed into the urethra, and the growth is scraped from its point of attachment cleanly and with no appreciable bleeding. The detached papillomata are expressed from the meatus and the urethra flushed out with normal salt solution. The urethroscope is again inserted and the former sites of attachment of the papillomata touched with trichloroacetic acid."

\* Paper read and case demonstrated at the meeting of the San Francisco branch of the American Urological Association, August 18th, 1910.

I find by following the same procedure with the ordinary urethroscope as does Mark with his aero-urethroscope, the results are very gratifying.

Watson<sup>8</sup> uses fused nitrate of silver to the base of the growth after removal. Klotz<sup>9</sup> suggests 50% concentrated chromic acid. Ehrmann<sup>10</sup> uses electrolysis entirely in small growths. He cures the larger ones, and follows this with electrolysis. He claims there is no resulting scar formation.

The case you now see presents the following history: Apr. 6, 1907:—E. J., age 23, single, leather salesman. No history of lues. First gonorrhea in Nov., 1905, treated by both illegitimate and legitimate practitioners for 7 months when he was discharged as cured. Oct., 1906, second gonorrhea, treated by self with santal-midy only, complicated with epididymitis for which he remained in bed 2½ weeks; has morning drop, also slight discharge during the day, and weak erections for which he consulted me. I found gonococci; 1st urine cloudy with shreds; 2nd slightly cloudy with few shreds; 3rd clear; 4th clear with shreds; later, on urethroscopic examination a few inflamed follicles were found, prostate enlarged, with few gonococci. Diag.: Chronic Gonorrheal Urethritis and Prostatitis.

He discontinued treatment May 3rd on account of poor transportation facilities arising from the car-strike.

March 29th, 1910:—Patient returned with the following history: Last intercourse March 16, discharge appeared March 24, which was profuse and contained gonococci—some frequency of urination, especially diurnally—no tenesmus—slight pain—slight stinging at bladder neck—no hematuria, except once, one year ago, after coitus—no sugar, but albumen in abundance—1st, 2nd and 3rd glasses cloudy—prostate not examined at this sitting. About 2 weeks later on stripping the urethra, a few nodules were found, which I thought were infected follicles, but on attempting to empty them a small body shot forth to the meatus—no urethroscopic examination made on account of the presence of gonococci, until the middle of May, when about 60 of these growths were revealed, extending from meatus to bulb to bladder neck. They are more frequent in the first 5 inches, fewer in the bulb. They are gray in color, and vary in length, thickness and shape; occur singly and in groups; at the center of the pendulous urethra, no normal mucous membrane is discernible, the whole circumference being involved. Cystoscopic examination demonstrated the bladder to be free from these papillomata.

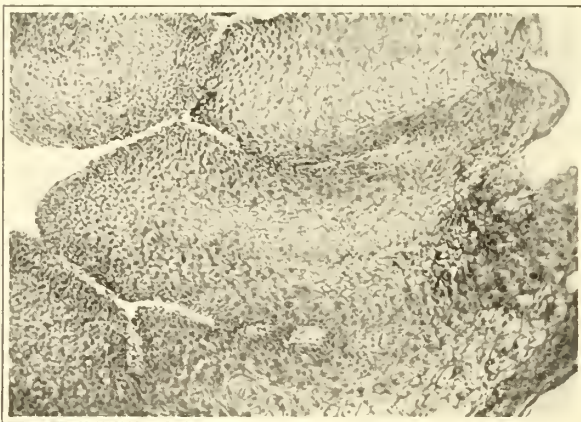
The technique pursued is the following:

The endoscope is introduced and the penis is placed on the stretch. The instrument is then drawn forward gradually until the tumor projects into the lumen. If the growth is very large, Mark's method is followed by thrusting the endoscope backward quickly and snipping the growth from its base. It is very important to hold the penis rigidly forward to eliminate all the folds of the urethra. Should the tumor be small, the forceps patterned

by Down as mentioned above is particularly efficacious. If still smaller, the curette is then brought into use. After operating, the canal is washed with normal salt solution, saturated solution of boric acid, or oxycyanide of mercury solution 1 to 3000; the tube reintroduced and the former sites of the growths cauterized. If the patient is oversensitive novocaine in 2 to 4% solution may be used. The operation must be done in installments, on account of the hemorrhage induced. I find it necessary to interrupt the work for about 7 days.

These bodies were sent to Dr. E. C. Dickson, Assistant Professor of Pathology, Cooper Medical College, who reported as follows:

Small ovoid or rounded white smooth masses, the largest measuring about 3 by 6 by 1½ mm. Sections show projections of fine fibrous tissue, covered by a regular row of cuboid epithelium and outside of which is irregular massing of stratified squamous epithelium. Some of the epithelial cells are quite large, but there is no evidence of malignancy in the sections. It would, however, be advisable to ascertain if possible whether the base from which these papillary nodules arise is indurated. Diag.: Papilloma of Urethra.



Papilloma of the Urethra.

There is seen the thickened layer of basal cells, and the irregular papillary outgrowths from it. The fibrous tissue septa are fairly well shown, and the irregularity of the cell outline, can be made out.

In conclusion, I would advise a thorough examination of every case of Chronic Urethritis for papilloma, for undoubtedly many individuals with chronic discharges are possessors of these growths.

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## REMARKS ON IMPOTENTIA COEUNDI AND SEXUAL NEURASTHENIA AND THEIR TREATMENT.\*

By A. B. GROSSE, M. D., San Francisco.

As the title of this paper signifies, I have no intention in the brief time allotted to me to even try to cover this vast subject. Any one sufficiently interested will find everything of importance in some of the recently published monographs. I will not classify the various types according to their pathological and physiological bases, but will endeavor to call attention to certain well known and frequently observed conditions, and when necessary, to illuminate and emphasize them by briefly citing histories of patients observed by me. If I am successful in only slightly stimulating the interest of the medical gentlemen present in this most important subject my object will have been attained; for in the past these unfortunate patients have been unable to get any relief from their logical medical advisers and have been considered the legitimate prey of the advertising quack.

I take it for granted that my audience is acquainted with the physiology of the sexual act.

It is evident that anatomical defects, epispadias with *ektopia vesica*, hypospadias perinealis and scrotalis, destruction of penis by gangrene and phagedenic ulcerations, tumors of penis, etc., are more or less prohibitive to connection. Plastic indurations of corpora cavernosa (*induratio penis plastica*) by causing excentric erections or pain. The etiology of this complaint is usually considered to be syphilis, diabetes or gout. I believe it to be due in most cases to a slight fracture or oft repeated trauma of the corpora cavernosa during coitus. I have under observation five cases in three of which a Wassermann test was made and found negative. Only one of these patients was unable to have connection on account of the pain caused by the erection destroying all desire with a consequent collapse of erectile tissue.

The loss of sexual desire is frequently the first symptom that makes patients seek medical advice, with the result that a chronic nephritis or a diabetes mellitus is found. It stands to reason that this should occur in the last stages of these diseases, but I have found loss of potency early in nephritis and diabetes in a number of my cases. Chronic alcoholism also in a small percentage of cases causes early impotence.

Locomotor ataxia either causes early loss of potency, or, as a number of my patients complained, erections lasting an hour or more without ejaculation or orgasm. Gout may also be considered one of the early causes.

A large contingent of our patients belong to the class that we may term "nervous impotence": Patients who have no pathology in the sexual organs with the exception that they feel unequal to the sexual act and that they possibly have a general neurasthenia or that it is only a symptom of hypochondriasis.

1. A young man of neurotic antecedents, himself bearing the stigmata of neurasthenia, with no his-

tory of onanism, no previous sexual connection, marries a young woman and is sent to me by Dr. Hunkin two weeks after marriage with the complaint that he is unable to have intercourse. Careful examination of genitalia with negative findings; history of a fair erection at the first attempt with gradual reduction in size and duration of erections.

2. An attorney who after the death of his first wife remained continent for a period of about a year, upon again marrying found himself impotent with the result that each attempt made conditions decidedly worse. Examination showed a normal condition of genitalia. He was told after this examination to not attempt coitus for one week, when I would re-examine him. This proved satisfactory, as he telephoned two days later that he had entirely recovered.

3. A teacher of mathematics consulted me concerning an impotence that had developed during and after a period of very intense application to his vocation. In this case a loss of erection resulted at each attempt as problems would present themselves at that time. No pathology in genitalia. Alcoholic stimulation advised with satisfactory results.

*Relative Impotence.* This is a state where a man may be potent with all other females but impotent with one. An attorney who had been forced to practice coitus interruptus with his wife for a period of time got all the symptoms of irritable weakness. After proper treatment he found himself impotent as far as his wife was concerned. This case is part of the record of the divorce court.

*Impotence on the Basis of a Gonorrhea* with prostatitis vesiculitis and the consequent changes in the posterior urethra is very frequent. Patients complain of precipitate ejaculations, flaccid erections, neuralgic pains and paresthesias of genitalia, frequent urination, imperative urination, or sometimes a difficulty to start stream. These people have usually had injections, sounds, electricity, baths and treatment at springs. Upon examination of prostatic and seminal vesical expressate many pus cells, gonococci (?) and bacteria are found. The endoscope shows marked changes in the posterior urethra, *caput gallinaginis*, etc. The Goldschmidt instrument has taught us that many cases formerly considered of nervous origin with no pathologic basis really are due to definite changes in the posterior urethra. This picture is so common that I need not bore you with illustrative cases; suffice it to say that massage of prostate, stripping of vesicles, autogenous vaccines and topical applications will give results in practically all cases if skilfully done and persevered in.

Another type of post gonorrheal impotence is in those cases where no gonorrheal residual is to be found, where the patients have been well treated, perhaps too energetically; sounds, dilatations, caustics, etc. In some of these cases we undoubtedly deal with irritable weakness or what is slightly rarer, an atonic impotence, i. e. hyperesthesia of the mucosa of the posterior urethra, *colliculitis seminalis*; or, on account of changes in the terminal nerve fibres of the posterior urethra, a more or less marked anesthesia. This same picture we find in cases of excessive onanism, coitus interruptus and sexual excesses.

In the hyperemic type of cases, topical applications through endoscope, prostatic sounds, hot sitz baths, etc., etc., will many times give the expected result.

\* Read before the San Francisco County Medical Society, Sept. 13, 1910.

In the anesthetic cases it depends largely upon the severity of the case. Very marked local irritation, faradic current, curetting of mucosa of posterior urethra, will often give results in cases declared hopeless.

*Precipitate Ejaculation* (ejaculatio præcox) frequently occurs in normal individuals, the ejaculation being accompanied by a satisfactory orgasm. This occurs in patients who have been continent for some time or frequently in the face of a new love affair. A fairly large dose of bromide, or a large glass of pilsner frequently exerts a sufficient inhibition. Otherwise morphin is an excellent remedy.

This same symptom accompanied by a deficient erection, absence of orgasm and distinctly disagreeable sensations is either a manifestation of irritable weakness or one of the initial symptoms of paralytic impotence. Endoscopic examination shows an abnormal hyperemia, a sodden swollen condition of the mucosa of the posterior urethra and colliculitis. The urine examination shows a chronic posterior urethritis and the patients complain of disuria, painful urination, spasmodic contractions of sphincter. Neuralgic pains during ejaculation are due to the irritation of inflamed prostatic urethra.

*Retarded Ejaculation.* This is not unusual in men who have lived rather an active sexual life, and if not accompanied by disagreeable sensations and exhaustion, they will hardly come to a physician for advice. I have seen several such cases, they being medical men, and two lawyers who were apprehensive of the future. A not uncommon condition is retarded ejaculation where only after physical exhaustion ejaculation takes place accompanied by disagreeable and painful sensations.

*Orgasm.* The orgasm is the feeling of sexual delight or satisfaction that takes place when the semen enters the prostatic urethra. The decrease or even absence of orgasm is a frequent complaint and is usually a warning for a more rational sexual life.

*Seminal Emissions.* Nocturnal emissions are normal to the degree that when pressure occurs in the seminal vesicles the reflexes are set in motion and the emission takes place accompanied by an erection and an erotic dream. This is followed by no depression physical or mental. The character of the dream is characteristic.

*Frequent or Heaped Nocturnal Emissions.* Sexual overexertion, frequent and repeated cohabitations cause an irritability of the spinal genital centers, which during sleep may cause frequent emissions. Accompanying these we usually find general nervous exhaustion, impotence, dyspeptic symptoms and great psychic depression. This condition may lead to the graver symptom of diurnal emissions, which take place upon the simplest erotic stimulation, i. e., sitting next to an attractive woman, literature of the erotic type, etc., an erection followed immediately by ejaculation.

In case the irritation of the genital reflex centers has reached the maximum, ejaculation takes place without erection or orgasm, leaving the patient terribly depressed, faint, etc.

*Spermatorrhea and Prostatorrhoea.* Occasionally this takes place in normal individuals who have

been continent for some time or who are constipated. In the pathological conditions either prostatic, or material from the seminal vesicles is found after every stool and micturition. The patients complain of weakness, headache, neuralgic testicular pains. The secretion, with the gravity of the condition, changes up to a period of the absence of spermatozoa.

*Urethrorrhea ex Libidine.* I mention this only because many patients consult you for what seems to them a grave condition, which is really a hypersecretion of the anterior urethral, Cowpers, Littres and Morgagnis glands. Microscopically mucous and epithelial cells are found. This is frequently present in cases of excessive masturbation, long continued sexual excitement and after treatment for urethral inflammations of long standing.

*Sexual Neurasthenia.* One of the earliest symptoms is a hyperirritability and sensitiveness of the skin of the genitals; marked hyperesthesias and paresthesias of the skin of the penis and scrotum, principally the glans. Sometimes this is caused by phimosis, balanoposthitis, etc., but usually nothing pathological can be found. Patients complain of terrible pain of glans, either due to touch or spontaneous in type. This hyperesthesia may take in the scrotum, urethral and bladder mucous membrane, causing disuria, etc. Patients have to void the urine on account of pressure and this act is accompanied by pain, burning and disagreeable sensations of the penis and anal regions. Neuralgias of testicles and prostatic gland may be present. Ejaculation is painful to the point of torture, this being the case during emissions as well as during copulation. This is the reason for the intense depression as well as the rapid onset of general symptoms. Endoscopically we find inflammatory changes and hyper sensitiveness near the meatus and in the prostatic urethra. Frequently we find pruritus of the scrotum, perineum and anus, and a number of such sufferers who consulted me, and who had run the gamut of dermatologic advice, were cured after the correct diagnosis had been arrived at. A feeling of cold or chilliness of the genitals and even large portions of the body is quite frequent. Hyperhidrosis of the genitals is not infrequent, and is complained of on account of the moisture, feeling of cold and particularly on account of the odor. The penis occasionally seems smaller and definitely decreases in size when exhibited or on attempted intercourse. Frequent micturition (painful?) particularly in the daytime is a marked symptom.

Disuria and stranguria nervosa are brought about by hyperemia and inflammatory swelling of posterior urethra. Later disuria is present even at night. Frequently patient does not feel the satisfaction of having emptied his bladder, having the sensation of residual urine.

In the second stage of this disease all symptoms are aggravated, with pains in the back, rectum, anus, radiating towards kidneys, thighs and even feet; formication, inability to stand for long periods and marked weakness in limbs after emissions. The pain in region of kidney may simulate renal colic, and I had a case X-rayed and had made a tentative diagnosis of stone only to find my error a little later.



The third stage is practically an aggravation of symptoms of the second stage with the addition of marked symptoms of general neurasthenia; rheumatic lancinating pains of trunk, headaches, hemicrania, marked hyperesthesia of skin, general feeling of cold, formication, etc.; a feeling of general exhaustion, inability as to muscular effort; tremors, exaggerated reflexes; serious dyspeptic disturbance, constipation alternating with diarrhea, flatulence, phosphaturia and oxaluria.

*The Treatment of Neurasthenia* is very difficult and only individualization, careful removal of all pathology from genitals, a moral and sexual hygiene, full control of your patient, hydrotherapy, a correct and active life will, after some failures, frequently accomplish a cure, or at least a marked amelioration. One must not lose track of the fact that these people have no resistance, and that the slightest causes may bring about a relapse.

A young man with all the symptoms of the second stage of sexual neurasthenia was sent to me in 1902, and after eighteen months of tedious and careful treatment and general direction he married and remained well with the exception of occasional slight symptoms. One year ago his wife went to Europe, and living at his club he committed a few excesses in *venere* and *baccho*, with the result that six months ago he came to me with a very severe relapse. Only recently he has sufficiently recovered to take up his marital relations, and his wife has been duly informed as to his antecedents.

#### A CASE OF FILARIASIS TREATED BY THE WHERRY-McDILL METHOD.\*

By EDWARD VON ADELUNG, M. D., Oakland.

As is always the case in the treatment of any incurable complaint, there are a large number of remedies offered for the cure of filarial chyluria. The principle ones are gallic acid in large doses, benzoic acid in large doses, glycerin, tincture of the perchlorid of iron, decoction of mangrove bark, chromic acid, quinin, salicylate of soda, ichthyol, *nigella sativa*, thymol, and methylene blue.

Commenting on these remedies, Manson says that he does not believe that those substances have any influence whatever in stopping the lymphorrhagia. Probably the latest suggestion for the cure of chyluria is that offered by Drs. Wherry and McDill.

Five years ago these authors reported a case treated by thorough cinchonization and subsequent exposure to the X-rays. Their patient was given 80 to 90 grains of quinin sulphate during forty-eight hours and was then submitted on alternate days to the X-ray. From time to time the cinchonization was allowed to cease and the patient permitted to rest for a few days. That their radiation was energetic was evidenced by their report that the skin over the chest and abdomen became red and hot. Their patient also experienced in the way of complication, a left pleurisy, which yielded 600 cc. of fluid. At that time they report that the patient's skin over the entire body became scarlet.

"All this time the urine remained thick and bloody but now became normal and has remained so." The temperature throughout, except during the pleurisy, remained about normal. The patient gained strength and weight and improved in general appearance, except during the time of the pleurisy. Although the patient was discharged from the hospital and was up and about for two months, the chyluria did not return, although the living embryos still persisted in her blood.

Three years later these authors make a second report as follows:

"The hematochyluria cleared up on October 10th, 1904. Two months later filarial embryos were still present in the peripheral blood, but repeated examinations since, made about once a year, have failed to reveal the embryos. The last examination was made one year ago, 1908. The patient is now in Nagasaki and said to be in good health."

This experience was so encouraging that I decided to elect this treatment for my case: the history of which, abridged, is as follows:

On December 10th, 1909, I was consulted by Harry Uyeno, a Japanese, aged 29, who had come from Japan six years before, stopping at Hawaii three months on the way. In 1905, he took a trip to Alaska and on his return to Oakland, in 1907, developed for the first time hematochyluria, which continued during August and September. The next year, 1908, he had his second attack which began in July, lasting through August and September, disappearing, curiously enough, in the same month as his first attack. It was during his third attack, in 1909, that he came to me saying that the chyluria had continued steadily during September, October, November and December, of that year.

The patient was fairly well nourished and complained of no symptoms except general weakness and milky urine. A physical examination was negative. His pulse was 100, temperature 98. His blood, taken at midnight, showed a great many sheathed filarial embryos. The urine was very milky and colored by blood. It did not contain any embryos. Sp. Gr. 1028, reaction slightly acid, albumen present, but no fat. Blood-count gave the following percentages:

Polymorphonuclear neutrophils (includes..... transitionals) .....	46%
Lymphocytes .....	29%
Large mononuclears .....	14%
Eosinophiles .....	11%

After consultation with Dr. Creighton Wellman, the patient was put on the Wherry-McDill treatment. To give a detail account of the treatment which was pursued from the middle of December to the middle of April, four months, both at home and in a hospital, would be tiring and probably unprofitable. Suffice it to say that he was immediately cinchonized so thoroughly that he could scarcely make the journey to my office for the X-ray exposures. The quinin taken, varied from 15 grains per day to 120. By December 31st, at which time I had given only two X-ray exposures the urine became perfectly clear and of normal sp. gr. with no trace of albumen, the first time the urine had been clear for four months. The number of embryos in the peripheal circulation decreased markedly. The patient improved in that he was more ambitious, though his weight did not change materially. Wishing to clinch the cure, the quinin was continued, in moderate doses, and the patient exposed to the X-ray once a fortnight. It appeared that I was to have the pleasure of reporting the second cure under this treatment. But on February 7th, and intermittently thereafter, the hematochyluria reappeared.

\* Read at the Fortieth Annual Meeting of the State Society, Sacramento, April, 1910.

Unwilling to give up the hope of cure, the patient was placed in a hospital where the same treatment of cinchonization and exposure to X-ray was again vigorously pursued and fortified by rest in bed, limited diet and variations in the salts of quinin and their method of administration.

But in spite of all this the patient has a marked hematochyluria, is just as weak as ever, and somewhat lighter in weight. No X-ray burns were produced, the patient did not have pleurisy or any other complications.

## A CASE OF SPLENOMEGALY WITH FATAL HEMATEMESIS.\*

By WILBUR A. SAWYER, M. D., Berkeley, Cal.

The following case is of interest as a member of a group of cases of which the cause is unknown and of which the classification is still in dispute.

J. Y., male, aged 25 years, married, a native of Japan, cook by occupation.

Family History.—No facts of importance could be elicited.

Previous History.—Several years before the present illness he had contracted a severe attack of malaria in Central California. His recovery seemed complete with the exception of a permanent impairment of hearing. No other previous diseases could be learned of. He remembered no symptoms referable to his stomach, except one or two mild attacks of gastric indigestion during the last few weeks before I saw him at the time of his first hemorrhage.

First Attack.—On the night of December 24, 1908, he went to bed feeling well. At midnight he suddenly awoke and vomited about a pint of red blood. During the following three days he passed black stools. Five days after the hemorrhage the guaiac test showed that the intestinal contents were entirely free from blood. A moderate anemia resulted from the hemorrhage, but it diminished rapidly. The diet was regulated and iron was prescribed.

Second Attack.—On August 3, 1909, over seven months after the first hemorrhage, at 3 o'clock in the afternoon, he suddenly felt a pain in the upper part of his abdomen. He felt dizzy and faint and experienced a strong desire to move his bowels. It was not until one o'clock in the morning that his bowels moved. The formed stool which he then passed presented on examination a normal brown portion and a black part. The latter gave a very strong positive guaiac reaction for blood. There was a sharp line of demarcation between the two portions of the stool, suggesting a sudden beginning of a decided hemorrhage of the alimentary tract. On the third day after the hemorrhage the hemoglobin, estimated by the Tallquist scale, was 65 per cent and the conjunctivae, tongue and skin showed decided pallor. A week after the hemorrhage the feces had resumed their normal color, and five days later the guaiac test showed the absence of occult blood. The patient was urged to give up cooking and to take up a more hygienic occupation.

Third Attack.—On September 14, 1909, six weeks after the hemorrhage just described, he experienced his third attack. It began at one o'clock in the morning with a severe pain in the abdomen. The following forenoon he passed a black stool, and during the next few days the melena persisted without recurrence of pain. On the evening of the third day he had a severe pain in the upper part of his abdomen lasting twenty minutes. Two days later he was taken to the Roosevelt Hospital.

Physical Examination.—A Japanese of average size, of good development and nourishment. He weighed 135 pounds a few days before the present attack. He had never weighed over 140 pounds. The tongue, conjunctivae and skin showed marked

pallor. His throat was normal. Eyes reacted well. Heart dullness normal in size and position. Heart sounds of good quality. A faint systolic murmur in the pulmonic area. Lungs entirely normal. In the left half of the epigastrium there was a firm, bulging mass, which was not tender to the touch. Including the bulging area and also the usual situation of splenic dullness was an oval area of dullness measuring 18x13 cm. The liver dullness extended in the nipple line to 1 cm. below the costal margin, where the edge was felt. The abdomen was otherwise normal except for slight general muscular resistance. The superficial lymph glands were not enlarged. The knee jerks were normal. Temperature normal.

Blood Examination.—Hemoglobin 60%. Red corpuscles 3,308,000. White corpuscles 3,800. Differential count of white corpuscles; polymorphonuclears 73%; small mononuclears 12%; large mononuclears 7%; eosinophiles 8%. No mast cells or myelocytes. The average size of the red corpuscles was normal, but they showed considerable variation in size and shape. Frequently a stippled red corpuscle was seen. Considerable polychromatophilia. No nucleated red corpuscles. Very few platelets. No malarial or other parasites.

Urine.—Clear and of normal color. Acid. Specific gravity 1.020. No albumin. No sugar.

Feces.—Dark in color until the sixth day after the beginning of the attack. On the eleventh day they were examined with the following result: Normal in color. No undigested food elements, no crystals, no microscopic blood. No excess of mucus. No ova or parasites. Guaiac test for blood, negative.

Stomach Examination.—On the twelfth day after the onset, the stomach-tube was passed without special discomfort, and the following results were obtained by examination:

Stomach capacity.....950 cc.

Fasting contents.....120 cc.

Guaiac test of fasting contents very faintly positive; probably due to very slight bleeding from the irritation of the tube.

Inflation with air showed the stomach to be of normal size and normally placed, but overlain at its cardiac end by a very large spleen.

A test meal of two small slices of bread and 250 cc. of water was given and was removed at the end of an hour.

Contents after test meal: 20 cc. of yellowish gray fluid. Odor suggestive of organic acids. No excess of mucus. Strongly acid to litmus. Complete absence of free hydrochloric acid was shown by negative reactions with Töpfer's and Günzburg's reagents. Total acidity 0.14%. No lactic acid. Microscopic examination showed only finely divided starch and fat. No red blood corpuscles or leukocytes.

On September 30, 1909, the patient left the hospital with instructions to take Bland's pills over a period of several months. He was strongly urged to give up his work and to return to Japan, where he could live in greater comfort. The patient was seen by Dr. Geo. F. Reinhardt in consultation, and splenectomy at a future date was seriously considered. The diagnosis of splenic anemia with secondary gastric hemorrhages seemed definitely established at this time.

On February 17, 1910, four and one-half months after leaving the hospital, the patient reported at my office. He was in excellent condition. His hemoglobin had increased to 90%, and he was still taking iron. He had had no disturbances since leaving the hospital except a slight pain in the left side when he lay down at night. This was probably due to the traction of the large spleen. The splenic dullness now measured 20 by 13 cm.

Fourth Attack.—On April 24, 1910, seven months after the last preceding hemorrhage and sixteen months after the first, he suddenly vomited a large quantity of fresh blood, estimated by himself as two or three quarts. He had been entirely well and had

\* Read before the Alameda County Medical Association on September 20, 1910.



again taken up his occupation of cooking. I found the patient lying on his bed completely prostrated. His skin was blanched, his extremities were cool, and his pulse was very feeble. Morphia was given subcutaneously and an ice-bag was placed on the epigastrium. He was carefully taken to the hospital.

After his arrival he vomited a small quantity of blood. All food and water were withheld. The next morning his pulse was rapid and weak and he complained of great discomfort. Morphia gave temporary relief. In the evening he had had no hemorrhages for nearly twenty-four hours, and his condition was critical. The giving of 800 cc. of physiological salt solution subcutaneously was followed by distinct improvement. He then began receiving nutrient enemata and salt solution by rectum. On the second day he passed a large black stool and vomited a small quantity of fresh blood. He remained miserable and restless. On the fourth day small amounts of milk and lime water were given by mouth, and on the fifth day he received egg and tincture of ferric chloride. He began to grow stronger and recovery was hoped for. In the evening of the fifth day he suddenly vomited about two quarts of blood. He showed the symptoms of extreme hemorrhage and died early the next morning.

Autopsy.—Man of less than average size. Skin blanched. Superficial lymphnodes not enlarged. Very little subcutaneous fat. Muscles not remarkable. Peritoneal cavity free from fluid. Intestines normal in appearance. Appendix slightly thickened at its free end. Stomach small and of normal appearance. Spleen very greatly enlarged (about 18 x 15 cm.) and unusually firm on section. Its surface was smooth and its color normal. The liver was smooth, pale, of normal size, and of normal consistence. Kidneys normal. The pleural cavities were free from fluid. The pleurae on both sides showed extensive light adhesions. The dependent portions of the lungs were heavy and did not crepitate, but the lungs were otherwise normal. Pericardium not remarkable. The heart was normal in size. Valves and cavities normal.

The esophagus, stomach, duodenum, and the upper part of the jejunum were opened and carefully searched for the source of hemorrhage. The lower part of the esophagus showed dilated, tortuous veins, but no actual break was discovered. The lining of the stomach was normal except for a small, oval, unidentified parasite imbedded in the mucosa. The duodenum and upper jejunum were entirely normal. It seemed probable that the profuse hemorrhage had come from rupture of the varicose veins in the esophagus.

The case here reported belongs to a group classified by Osler<sup>1</sup> as splenic anemia and considered by him to be an intermediate stage between primitive splenomegaly, which arises without known cause and is unaccompanied by disturbance of health, and a splenogenous cirrhosis of the liver with jaundice and ascites, commonly known as Banti's disease. The stage called splenic anemia is characterized by great enlargement of the spleen without especial enlargement of the external lymph glands and by an impoverishment of the blood of greater or less severity, often depending in a large part on recurrent gastric or esophageal hemorrhages. In a series of fifteen cases coming under his observation Osler<sup>2</sup> reported eight which, like our own, had hemorrhage from the stomach as a prominent symptom. He supports the view that the disease "is a chronic infective process with its chief seat in the spleen, and that the poisons cause the endothelial proliferation, the anaemia, and ultimately the cirrhosis of the liver."<sup>3</sup> Four of Osler's fifteen cases, like the case here reported,

had a previous history of malaria, but this disease was not considered to have been the cause of the great splenic enlargement.

Whether the splenomegaly causing the train of symptoms in the case here reported was due to the specific infectious process mentioned by Osler or to some other disease producing splenic enlargement is open to question. Stengel<sup>4</sup> says that pathologically speaking splenic anemia belongs in the category of chronic splenitis, such as occurs secondary to malaria, syphilis, rickets and chronic gastrointestinal diseases, and that the splenic lesion is essentially a fibrous hyperplasia. He maintains that the impoverishment of the blood is rarely a predominating feature except after repeated hemorrhages. In our case malaria may have been a factor. The lack of history of severe disease other than an attack of malaria which was contracted in California and the absence of emaciation, fever, and hepatic enlargement are strongly against kala-azar with its "tropical spleen."

The hemorrhages of the stomach are usually explained as caused by engorgement of the splenic vein, due perhaps to the traction of the enlarged spleen on that vessel, and the resulting stasis in the tributaries coming from the stomach.

The treatment of splenic anemia during the attacks of bleeding is necessarily like that of gastric hemorrhage from other causes. In severe cases like the one reported here, splenectomy is indicated and offers a probable cessation of the series of hemorrhages as well as a disappearance of all the other symptoms.<sup>5</sup>

1. Osler, Wm., Brit. Med. Jour., 1908, Vol. 2, p. 1151.
2. Osler, Wm., Am. Jour. Med. Sc., 1900, CXIX, 54.
3. Osler, Wm., Brit. Med. Jour., 1908, Vol. 2, p. 1151.
4. Stengel, Alfred, Am. Jour. Med. Soc., 1904, CXXVIII, 497.
5. Lyon, Irving P., Osler's Modern Medicine, 1908, Vol. 4, p. 768.

## DEPARTMENT OF PHARMACY AND CHEMISTRY.

Edited by FRED I. LACKENBACH.

### Official vs. Proprietary Preparations.

Introductory.—Physicians generally are averse to prescribing proprietary preparations the composition of which is secret or subject to change at will of the producer, and a familiarity with the official preparations, their synonyms and derivatives, will often enable the practitioner to avoid the use of questionable products.

It is questionable whether a manufacturer or promoter has the moral right to gather into a private formula medicinal agents which are the common heritage, and under an assumed title foist them upon the public at exorbitant prices.

There must be something radically wrong with the patent and trademark laws which permit the importation into this country of foreign medicinal products which, under the protection of these laws, command many times the prices asked for them in foreign markets. There must be a weak spot somewhere that permits simple substances to be slightly modified into "complex chemical compounds" having wonderful properties not possessed by the originals, and then under patent and trademark "rights" converted into gold mines.

"Phenacetin" under patent and trademark rights, for years commanded one dollar per ounce. Now

that the patent has expired it is listed at thirty-three cents per ounce, while under its official name—Acetphenetidin—it costs ninety-seven cents per pound. "Trional," under similar circumstances, is listed at \$1.50 per ounce, but as Sulphonethylmethane, U. S. P., may be purchased at \$0.45 per ounce. "Sulfonal," another example, is listed at \$1.35 per ounce. As Sulphonmethane, U. S. P., it costs \$0.30 per ounce. Aristol as "Aristol" costs \$1.80 per ounce, as Thymol Iodide, U. S. P., its wholesale cost is \$4.10 per pound.

"Aspirin" under its chemical name, Acetylsalicylic Acid, is official in the French, Swiss, Danish, Swedish and Hungarian Pharmacopeias. In the United States it is unlawful to dispense it except as "Aspirin," which costs \$0.43 per ounce. Druggists surreptitiously purchase the foreign article at \$1.25 per pound. It is unfortunate that Americans countenance a law that make "rascals" out of as respectable a body of men as druggists generally are.

While it is commendable to encourage original research in this field, a stop should be put to the practice of manufacturers' agents mulcting the American public through the importation of foreign novelties, and by alluring and misleading advertisements, making the physician a party to the transaction.

Many of these "synthetics" and remarkable compounds would be ridiculed if offered in foreign markets and the majority of them are not listed in the home catalogs of the European producers.

If Brown's make of hypophosphites is superior to Smith's at the same cost, Brown's enterprise should be encouraged. If, however, Brown makes extravagant claims which are not borne out by the facts, his product should be classed with the nostrums and scrupulously avoided. The principles of honest competition are as applicable to the production of pharmaceuticals as they are to the production of clothing and foodstuffs.

Both the medical and pharmaceutical professions are heavily indebted to the Council on Pharmacy and Chemistry of the American Medical Association for its activity in investigating and exposing the innumerable frauds which have been, and are being, perpetrated upon the medical profession and the lay public. To the publications of the Council the author is indebted for much of the material contained in this department.

An effort will be made in the next revision of the United States Pharmacopeia to simplify the nomenclature of complex chemical terms. To the preparations recognized by the United States Pharmacopeia, National Formulary, and New and Nonofficial Remedies (Council on Pharmacy and Chemistry), the abbreviations, U. S. P., N. F., or N. N. R., should be appended, thereby enabling the druggist to dispense authoritative preparations.

Acetphenetidin, U. S. P.—Phenacetin. To which are related—Lactophenin; Chenocoll.

Acetanilid Powder, Compound, U. S. P.—Compound Acetanilid Powder. To which are (or were) related—Antikamnia; Chenalgin; Salacatin; Ammonia. Besides, thousands of "headache" and "neuralgia" powders.

Antipyrin, U. S. P.—Analgesin (France); Phenazonum (Great Britain); Pyrazolonum-phenyldimethylum (Germany). The salicylate is known as "Salipyrin"; the mandelate as "Tussol"; the compound with ferric chloride "Ferripyrine" and "Ferropyrine."

Adeps Lanae Hydrosus, U. S. P.—"Lanoline"; "Lanum."

Ethyl Carbamate, U. S. P.—Urethane. To which are related "Euphorin"; "Hedonal."

Bismuth Subgallate, U. S. P.—Dermatol. To which are related "Airol"; "Bismal."

Cataplasma Kaolini, U. S. P.—Cataplasm of Kaolin; Antiseptic Clay Paste. To which are related "Antiphlogistine"; "Anhydrosine"; "Thermofuge"; "Thermaline"; "Unguentum Terralis," etc.

Chloralformamide, U. S. P.—"Chloralamid."

Cresol, U. S. P.—Cresylic Acid. "Tricresol." "Trikresol" closely resembles the official article.

Liquor Creosolis Compositus, U. S. P.—Compound Solution of Cresol. Practically identical with "Lysol" and similar preparations.

Elixir Digestivum Compositum, N. F.—Elixir Lactated Pepsin.

Elixir Gentian Glycerinatum, N. F.—"Glycerin Tonic Compound."

Guaiaicol Carbonate, U. S. P.—"Duotal." To which are related G. benzoate, "Benzosol"; G. salicylate, "Guaiaicol-Salol."

Hexamethylenamine, U. S. P.—"Urotropin"; "Formin"; "Cystogen"; "Aminoform." To which are related "Uriform"; "Helmitol"; "Saliformin."

Liquor Antisepticus, U. S. P.—"Lister's Solution"; "Antiseptic Solution." To which are related the majority of the proprietary antiseptic solutions, as "Listerine," etc.

Liquor Antisepticus Alkalinus, N. F.—Alkaline Antiseptic Solution. To replace the proprietary preparations of similar character, as "Glyco-Thymoline," etc.

Liquor Auri et Arseni Bromidi, N. F.—Solution of Gold and Arsenic Bromide. Essentially similar to "Arsenauro."

Liquor Ferri Peptonati Cum Mangano, N. F.—Solution of Iron Peptonate with Manganese. To replace the proprietary articles of similar composition.

Liquor Formaldehydi, U. S. P.—Solution of Formaldehyde. "Formalin"; "Formol."

Liquor Picis Alkalinus, N. F.—Alkaline Solution of Tar; "Liquor Carbonis Detergens."

Mistura Chlorali et Potassii Bromidi Composita, N. F.—Chloral and Bromide Compound. Frequently dispensed as "Bromidia."

Pulvis Antisepticus, N. F.—Soluble Antiseptic Powder. To supplant the various proprietary antiseptic powders on the market.

Pulvis Pancreaticus Compositus, N. F.—Peptonizing Powder.

Pulvis Pepsini Compositus, N. F.—Pulvis Digestivus; Lactated Pepsin.

Serum Antidiphthericum, U. S. P.—The natural serum, not the "concentrated" or "globulin" form is official.

Syrupus Hypophosphitum Compositus, U. S. P.—Should be given the preference over the proprietary makes.

Sulphonethylmethane, U. S. P.—Trional.

Sulphonmethane, U. S. P.—Sulphonal; sulfonal.

Thymolis Iodidum, U. S. P.—Thymol Iodide; "Aristol."

Tinctura Viburni Opuli Compositus, N. F.—"Viburnum Compound."

Vinum Carnis et Ferri, N. F.—"Beef, Iron and Wine."



## RAILWAY SURGEONS

### SUBCUTANEOUS INJURIES OF THE ABDOMINAL CONTENTS.\*

R. O. D. HAMLIN, M. D., OBERLIN

Subcutaneous injuries of the abdomen can be produced in various ways, being caused from blunt violence, such as blows, kicks or falls upon the buttocks or feet, or being run over by vehicles, compression of the abdomen between two hard objects, etc. A direct blow may rupture an underlying solid organ, such as the liver, spleen or kidney, or may burst a hollow organ such as the gall bladder, urinary bladder or intestine, or in some cases may cause the compression of the viscera against the spine or pelvis; a fractured rib may injure the liver, or fractured pubes may injure the urinary bladder. A fall from a height may tear loose certain portions of the abdominal viscera or rupture vessels in the mesentery.

The history of the injury or outward evidence on the abdominal wall may aid in locating the injured viscera. Again, the injury may be multiple or an injured intestine may not slough for many days, or if the injury is of such a nature as to tear loose the mesentery from the gut, gangrene and perforation may not occur for several days.

The correct diagnosis of abdominal injuries is the all-important factor in the management of this class of cases. The first question that confronts us is: Is the patient suffering from shock, internal hemorrhage, rupture of the gastro-intestinal tract, or rupture of some of the other organs, such as the spleen, liver, kidney or pancreas? Or, have you a combination of these symptoms, such as shock and hemorrhage, rupture of the intestinal tract with mesenteric hemorrhage or rupture of some of the solid organs with hemorrhage? Any and all of these symptoms may be attended with shock. Or, is the patient suffering from shock and a slow oozing internal hemorrhage, which may show signs of clearing up from the symptoms of shock and then lapse into a second condition from the hemorrhage?

The differentiation between shock and hemorrhage should be first determined, then as to whether rupture of the alimentary tract exists. These two conditions, shock and hemorrhage, have certain symptoms in common. The error of mistaking shock for concealed hemorrhage can be easily made.

The general symptoms in shock may be progressive, but in hemorrhage are always progressive. The local symptoms in shock may be absent, whereas in hemorrhage they are often present, such as abdominal distension, vomiting, hematemesis and hematuria. The mentality in shock is dull, in hemorrhage always active. Restlessness in shock is slight, in hemorrhage often very great. The pallor in shock is moderate, in hemorrhage it is very great, especially of the mucous membranes, and is progressive. Sweating in shock is frequently present, in hemorrhage usually absent. Respiration in shock is rapid, in hemorrhage marked and increasing air-hunger. The pulse in shock is rapid and weak, in hemorrhage grows more and more rapid and weak.

The effect of stimulants on shock is more or less lasting, but very transitory in hemorrhage. Specific gravity of blood in shock is at times, in hemorrhage decreased. This is the most reliable test we have for differentiating between shock and hemorrhage, the technic of which is very easily carried out and can be done with the ordinary instrument used in taking specific gravity of the urine. This method was first referred to by Vile in the *Medical Record* of August 27th, 1884.

In ruptures of the alimentary tract the patient feels severe pain at the seat of rupture. You here have the symptoms of shock but not so marked lowering in blood pressure. The pain continues unabated, there is local rigidity and tenderness of the abdominal wall, nausea and sometimes vomiting. In ruptures of the gut vomiting is usually present, but always so in ruptures of the stomach, but nausea is present.

Continued vomiting after these injuries strongly suggests injuries of the alimentary canal, as in shock one or two vomitings are common but not frequently repeated vomiting. Blood in the vomit suggests injury to the stomach, not necessarily perforation. Escape of gas from the intestinal tract causes gradual distension of the abdomen, which may give rise to exaggerated tympanic resonance around the umbilicus or a diminution or absence of the liver dullness. The evidence of free fluid in the abdominal cavity will not be present unless the quantity of escaped contents is very large, then there will be dullness in the flanks and such dullness is usually more marked in the region near where the perforation took place. After a few hours you have the symptoms of diffuse purulent peritonitis. In the cases complicated by rupture of solid organs or by rupture of blood vessels, the early symptoms will be rather those of shock and acute progressive anemia, together with the local signs already mentioned.

It is not my purpose to consider shock, hemorrhage, collapse or rupture of the intestinal tract further than its connection with subcutaneous injuries of the abdomen, but it is necessary, as near as possible, that we determine from which of these conditions our patient is suffering. If he is suffering from shock, what shall be our line of treatment? If he is suffering from hemorrhage, what can be done for the patient? Or, if there is rupture of the intestinal tract, what course shall we pursue?

If the patient is suffering from shock, the impression upon the central nervous system, namely, the brain cells, is temporarily the same as that of hemorrhage. You have a cerebral anemia. In shock, the blood is contained in the splanchnic blood vessels, in hemorrhage, the blood is free in the abdominal cavity, so that in both conditions the brain cell is lacking in nourishment, and if this stage of anemia or lack of nourishment goes beyond a certain point, it is impossible for the brain cell to return to its normal condition, and the further this stage of anemia is carried on, as has been pointed out to us by Dolley, Crile, Stewart, Hill and several others, the more slowly does the brain cell return to its normal condition. Stewart has shown us, and this has been followed up also by Dolley,

\* Read at the Eighth Annual Meeting of the Pacific Association of Railway Surgeons, San Francisco, August, 1910.

Crile and others, that tissues or organs of low specialization endure anemia better than tissues or organs of high specialization, and that in the central nervous system component parts endure anemia in proportion to the high development of the nerve cells. They have pointed out to us that the weakest link in the entire vital chain in the cerebral nervous system is that which presides over conscious life and its special manifestations. The higher the development of the tissues the more sharply is the period of endurance to anemia marked.

The review of these pathological conditions will be an important guide to us in the future management of the case. If the patient is suffering from either shock or hemorrhage, it will be an important step in the line of treatment to lower the head of the patient in order to give better cerebral nourishment until such time as we have determined what further procedure will be necessary. If there is rupture of the intestinal tract, it will probably do no good to lower the head of the patient, but at the same time, will do no harm.

At this point I feel the necessity of mentioning the dangers which sometimes come from lowering the head of patients during shock or hemorrhage. This, of course, is the ideal procedure, as it relieves the pathology by giving the brain more nourishment, but there are certain contra-indications to this procedure and your patient should be very closely watched while in this position, especially if the general make-up, age, etc., of the patient would lead you to suspect a weak heart muscle. If the patient's head is lowered too much, the blood will gravitate into the right and left auricle of the heart, which have much less contracting power and strength than the ventricles, thereby causing a great amount of blood to be contained in the auricles of the heart, and if the position is too exaggerated, the blood will be caused by gravity to stay in the auricles. The contracting power of the auricles already being interfered with, both on account of gravity and their weakened condition, your pathology is increased instead of being relieved, but the blood pressure of the patient, his general condition and the increase of dullness of the heart to the right side must be watched. When it is found that the auricles are filling up, the patient should be lowered for a time and then again raised slightly and should be very carefully watched to ascertain whether this change of position increases or decreases the blood pressure.

The history of the injury is very important. Ascertain, as near as possible, the exact manner of the injury and go over the general condition of the patient. The results of local examinations often reveal the exact location of injured viscera. Have the patient catheterized to see if the urine contains any blood. If the urine does contain blood, a catheter should be introduced and the bladder washed clean with normal salt solution, the bladder then refilled with water and after waiting a few minutes again emptied with the catheter. If the blood is coming from the ureter or kidney, the fluid will be clear or slightly stained with blood. If the blood is coming from the bladder wall or prostatic urether, the mechanical irritation of wash-

ing will usually cause the continuance of blood so that the contents of the bladder becomes bloody at once, and the continuance of the washing results always in the evacuation of bloody fluid. Of course, the first washing should be thorough, in order to wash out any clots that may be in the bladder. When clots are found, the hemorrhage is very often from the bladder wall. Of course, this cannot always be determined without the use of a cystoscope. The location of the injury will often lead to the suspicion of either a bladder or kidney injury.

A very important point in making a diagnosis is to ascertain the length of time since the patient was injured and, if possible, to find out whether the patient is growing rapidly worse, in other words, are the symptoms of pallor, rapid respiration or air-hunger, restlessness or pain increased since the time of injury, or has the patient slightly improved. If so, the improvement being only transient, it might indicate that the initial shock had partly passed away and that hemorrhage was gradually taking place.

The indiscriminate use of stimulants is here contra-indicated, as the patient may be suffering from hemorrhage, and if suffering from shock it has been pointed out to us by many investigators that the ordinary use of stimulants, such as strychnia, nitroglycerin and others only tends to increase the pathology that already exists.

I have had the opportunity of being present in the Western Reserve University, Cleveland, Ohio, when experiments were made in cases where transfusion of saline or blood was resorted to, or the use of adrenalin. It was very interesting to note how short the action of adrenalin was upon such cases, and again to note the transitory action of saline in comparison with blood transfusion, saline, however, lasting much longer than adrenalin, which lasted only from five to fourteen minutes, while saline lasted from twenty minutes to an hour and a half. The effect of blood transfusion seemed to be decidedly permanent.

So it will be seen that we can only arrive at a proper conclusion after a careful diagnosis of the condition. Our diagnosis having been made, the treatment suggests itself. Should the condition be shock, which is very severe in some cases that I have seen, it would give a strong suspicion of hemorrhage until the case was diagnosed. If we attempt immediately to open the abdomen of a patient in severe shock and manipulate the internal viscera looking for some lesion, it will only tend to increase the condition that already exists. Therefore, during the first few hours or immediately after injury, if a diagnosis of hemorrhage is not made, the patient should be watched rather than rushed to the operating room. If the patient is brought to the surgeon in a state of severe shock, as for instance, from a mutilating trauma, he will have to decide whether to superimpose upon the existing condition the shock or ether and operation or to temporize and combat shock before operating. There seems to be a growing tendency in favor of the latter course. Many a patient, as a last hope rushed to an operation, has expired, where the operative risk might have been



lessened if a few hours had first been devoted to the treatment of shock.

On the other hand, if a diagnosis of hemorrhage is made, which I think generally can be, after watching the patient for a short time, if the condition of shock is not too pronounced, preparation should be made for opening the abdomen. The location of the injury will often be a guide as to where the abdomen should be opened.

In the emergency preparation of these cases, the abdomen should be thoroughly cleansed over its entire area, as a second incision may be necessary. A large incision should be made as it will not increase the already existing shock as much as severe manipulation of the internal viscera.

During the operation much may be done to forestall shock. If shock is expected, all precautions should be taken and everything made ready for the treatment of post-operative shock, while the operation is going on. The operation should be rapid. All preparations should be made and well planned before it is started. All means should be taken to prevent the loss of body heat. Body and limbs should be wrapped in blankets and heat applied upon the operating table. Special care should be taken that the patient is not lying exposed upon an uncovered cold glass table, especially in operations of length. Loss of blood should be scrupulously avoided. All unnecessary exploration and manipulation of the intestines should be guarded against.

Crile has recently demonstrated on animals that the main factor in shock is the general fall in blood pressure in the peripheral arteries and the coincident rise in pressure in the vessels of the portal system.

If hemorrhage from any of the solid organs exists, ligation of any of the larger vessels of such organ should be attempted, and if it be a general oozing from the surface of the rupture of such organ, suture should be attempted. It is true that many of these cases are fatal, but the cases are desperate to begin with, and we have to do something to make an attempt to save the life of the patient. Where statistics show a very high mortality in this class of cases, recovery often occurs, which would not without surgical interference.

If rupture of the intestinal tract exists, the treatment suggests itself. The opening should be closed but the abdomen should be drained; and especially so if the large intestine is ruptured, as the colon bacillus and other bacteria are more numerous in the large than in the small intestine.

Wounds of the spleen should be sutured and hemorrhage controlled, but in very extensive laceration, splenectomy is infinitely the safer procedure.

#### Discussion.

Dr. Robert T. Legge, McCloud: This paper which Dr. Hamlin has just read is similar to the one I read before our society last year. I wish to emphasize some of his remarks in regard to the treatment of these cases. In many of these cases that come before us, during the first few hours the only symptom complained of by the patients is the severe pain, and we find it very difficult to diagnose early the difference between shock and severe hemorrhage. Taking the specific gravity of the blood to differentiate between these two conditions is an ideal method. I claim that all severe abdominal injuries should be operated at once, be-

cause later on where there is considerable hemorrhage and shock most of the patients die. No so-called conserve treatment or the waiting for reactions is permissible. In reference to the external marks of violence, I have noticed that in two of my cases there were none existing; but upon operating I found a ruptured intestine and a ruptured liver.

Dr. W. I. Terry, San Francisco: I wish to emphasize the matter of waiting for some recovery after shock, when the diagnosis can be made of shock and not of hemorrhage, or shock with a small amount of hemorrhage. It seems to me a better proposition to wait for some return. The reader of the paper spoke of the rapid preparation of the abdomen for operating in these cases that it should be thorough, but I find that a simple preparation of the abdomen can be made which is just as free from danger of infection as the more complicated methods. If the shaving of the skin be done by the dry method and the abdomen painted with diluted tincture of iodine, the disinfection is just as good as the scrubbing and the prolonged methods ordinarily employed.

### HOSPITAL SERVICE FOR RAILROAD CONSTRUCTION CAMPS IN THE PACIFIC NORTHWEST.\*

By WM. O. SPENCER, M. D., Huntington, Ore.

Living in a part of the country whose extensive natural resources are under process of development, my practice for a considerable portion of the last nine years has included contract hospital service for construction and mining companies. Therefore, in accepting the invitation to read a paper before this Association, it occurred to me that I might appropriately present this subject by detailing some phases of my experience in such work.

For a period of eighteen months from April, 1908, it fell to the lot of the writer to furnish hospital service to two construction companies in the same locality. One was doing the grading for sixty miles of railroad along the Snake River northward from Huntington, including a tunnel twenty-four hundred feet in length through a spur of the mountains, around which the river flows, forming what is known as the Oxbow. The other company was driving a second tunnel fifteen hundred feet long and twice the size of the railroad tunnel through this same mountain for the purpose of diverting through it the waters of the river from its circuitous course of four miles, thereby securing a fall of some forty feet for the generation of power.

The camps of this latter company were, of course, concentrated at the location of this tunnel. The railroad construction company established camps at different points along the line of the proposed railroad, with the largest and more permanent one at the long tunnel.

A village called Copperfield, typical of western frontier life, sprang up near the main camps of the two companies, and here I erected a rough frame building and equipped it for hospital purposes, employing for its maintenance a physician and a nurse.

\* Read at Eighth Annual Meeting of Pacific Association of Railroad Surgeons, San Francisco, August 26-27, 1910.

Having already a small hospital in Huntington, cases from camps other than those nearer to Copperfield were brought there.

Notwithstanding the crude facilities for treating patients, and the untoward conditions under which the men lived and worked, the results attained were most gratifying, there occurring no instance where a life was lost or a limb sacrificed on account of wound infection. Naturally, of cases requiring treatment, those of injury were the most numerous, the majority of such being cases of minor injury. In the tunnels, head injuries were, as a matter of course, the most frequent. In these cases, small scalp wounds usually healed by first intention.

The ailments affecting the men ranged from colds and acute indigestion to pneumonia and typhoid fever. Of the latter there were thirty-five cases during the summer and fall of 1909, with one death. In the preceding winter there were seven cases of pneumonia, one also resulting in death.

Of the different forms of illness, by far the greatest percentage of cases were due to errors in diet. In the main the food was wholesome and always plentiful, but prepared and served without much regard for cleanliness or elegance. The men, as a rule, ate their food, or more correctly speaking, devoured it, in record time, ten to fifteen minutes being the time ordinarily spent at the table. This feat was accomplished by filling the mouth to capacity and rapidly bolting the food by copious drafts of coffee or tea. Obviously there was no way of preventing such infractions of dietary rules, for any attempt to regulate the habits of the men in this particular would have been resented as interference with their personal liberty.

So far as personal cleanliness was concerned amongst these men, if the old adage—"Cleanliness is next to Godliness"—be true, then I fear the average employee of construction companies is far from the grace of God. Yet, notwithstanding this handicap to the practice of modern surgery, by the liberal use of soap and water, as a preliminary to surgical procedure, wound infection was the exception and healing of incised wounds by first intention not at all unusual. The happy results attained were doubtless due in large measure to the fact that the patients, as a rule, were strong, robust men, possessing remarkable recuperative powers.

While hospital service for construction companies is conducted along similar lines, and in accordance with the rules and regulations observed by railroad companies, the prevailing conditions call for greatly modified methods of procedure. Whereas hospitals utilized by railroad companies are situated in cities and large towns, those for construction companies are necessarily remote from the centers of population. Like the camps that are the occasion for such services, these hospitals are estab-

lished on a temporary and transitory basis. Barring any extremely untoward circumstances, such as a sweeping epidemic of some disease, or accidents involving the injury of a large number of men, commercially speaking the enterprise proves successful where any considerable number of men are employed; but from a professional standpoint, it is far from ideal. Yet the service is a valuable and important adjunct to the work of developing the boundless latent resources of a great portion of the Pacific Northwest.

For the most part the men employed in this work are a shiftless class of unskilled laborers, who are barely self-supporting. The contract hospital service maintained by deducting regular monthly dues from the wages of the men, thus employed, provides a way for caring for the sick and injured amongst them that is virtually a boon to these men, and obviates the necessity of their becoming dependent on the bounty of the commonwealth. As a rule the men prefer that this regulation be made, and their employers desire an arrangement whereby they are relieved of the responsibility of providing medical attention for the sick and injured amongst their employees. Yet, if credence is to be given to current report, it is to be regretted that, notwithstanding the palpable benefits and advantages of this institution to the construction companies, in some instances it has not escaped the taint of the graft evil, seemingly so prevalent in the social, as well as political, economy of our country. Forgetting the surgeon's outlay in establishing this hospital system, and the risk and expense he assumes in maintaining it, construction companies are apt to regard the checks they issue to the doctor as more than adequate for the services rendered by him, and some of them evince a desire to retain a substantial share of the hospital funds, nominally as a fee for collecting same. Ethically considered, it is needless to point out the reason why a contract under such conditions should be refused. From a business point of view, such service is a hazardous undertaking at best, and a requirement that materially reduces the gross returns without contributing to the expense side of the account, introduces too great an element of risk to admit of acceptance on the part of the surgeon. Any construction company is fairer to its men and more just to the surgeon when it subscribes to a contract free from the element of graft, and in return demands efficient and adequate service.

As an association, we recognize the fact that contract hospital service has a proper and useful place in the industrial life of the country, and it is to be hoped that the medical profession will see to it that the efficiency and equity of the service shall not be debased by rank commercialism.



## SAN FRANCISCO COUNTY MEDICAL SOCIETY PROCEEDINGS.

During the month of November the following meetings of the San Francisco County Medical Society were held:

### Section on Medicine, Tuesday, November 1.

1—Presentation of Medical Cases, Wm. Fitch Cheney. Discussed by Drs. Evans and Cheney.

2—Demonstration of Patients, H. D'Arcy Power, Louis D. Mead. Discussed by Dr. H. C. McClenahan.

3—Clinical Reports, J. Wilson Shiels. Discussed by Drs. Cheney, Alvarez, Shiels.

4—Demonstration of Specimens, René Bine.

### General Meeting, Tuesday, November 8.

1—Metastases of Carcinoma in the Ovaries and Pouch of Douglas, Julius Rosenstirn. Discussed by Drs. Lartigau and Rosenstirn.

2—The Etiological Significance of Persistent Effective States in Neurasthenia, G. V. Hamilton, Montecito. Discussed by Drs. McClenahan, Brown, Horn, Arnold, Quinan, Porter, Hamilton.

3—Demonstration of Tropical Protozoa (trypanosoma, spirilla and spirochetes), Dudley Tait.

New members: L. X. Ryan, J. S. Hanlon.

### Section on Surgery, Tuesday, November 15.

1—Operative Treatment of Prolapse of the Uterus in Elderly Women. Lantern slide demonstration, Geo. B. Somers. Discussed by Drs. Wakefield, Hoffman, Somers.

2—Operative Treatment of Suppurative Adnexal Disease, A. J. Lartigau. Discussed by Drs. Barbat, von Hoffman, Rosenstirn, Tait, Lartigau.

### Eye, Ear, Nose and Throat Section, Tuesday, November 22.

1—Demonstration of a Case, Kaspar Pischel. Discussed by Dr. Frederick.

2—Presentation of a Case, Cullen F. Welty.

3—The Etiology and Prophylaxis of Speech Defects, Henry Horn.

On the 17th of November the first annual dinner of the Society was held at Blanco's, the entire lower floor having been reserved for the occasion. There were about 120 members present and the spirit of good fellowship was the prominent note of the evening. Informal addresses were made by the President and various committee chairmen.

Acting upon the suggestions of various members, more prominently Dr. Melville Silverberg, the Society will hold these dinners or as substitutes lunches or smokers at frequent intervals in the near future.

### OFFICERS ELECTED FOR 1911.

President—Wm. Ophuls.

Vice-president—H. B. A. Kugeler.

Second vice-president—Jule B. Frankenheimer.

Secretary—René Bine.

Librarian—Dudley Tait.

Directors—Harry E. Alderson, René Bine, Adelaide Brown, George E. Ebricht, Jule B. Franken-

heimer, Henry Walter Gibbons, Philip Mills Jones, Wm. Watt Kerr, H. B. A. Kugeler, C. G. Kenyon, August J. Lartigau, Milton B. Lennon, Howard Morrow, Herbert C. Moffitt, Thomas D. Maper, Arthur A. O'Neill, Wm. Ophuls, H. D'Arcy Power, Emile Schmoll, John C. Spencer, Dudley Tait.

### NOTICE.

The following case reports and cases received by the Secretary are herewith published.

November 1, 1910.

### Presentation of a Case of Visceral Lues.

By WILLIAM FITCH CHENEY, M. D., San Francisco.

In this case there were a clinical history and physical signs in the left pleural cavity indicating the presence of fluid and upon aspiration 70 oz. were withdrawn. So far the case was perfectly clear and easy. Ordinarily we think first in such a case of tuberculosis of the pleura, but upon further investigation we found nothing to warrant such a diagnosis. The man has continually run a little temperature all the time he has been in the hospital, but we recognized that this might be due to other causes than tuberculosis. Subcutaneous injection of tuberculin was once used in an apyretic interval, but there was no reaction, and we never felt justified in giving the tuberculin again as there was almost daily a rise of temperature above 100°. However, he was given 1 milligram of Koch's tuberculin with a negative result as regards reaction. In the sputum we were never able to find tubercle bacilli. Another point against tuberculosis is that in looking over the fluid withdrawn from the chest it never showed tubercle bacilli either in cover slips or cultures. In the course of the examination of cover slips from the fluid there were found, however, a number of diplococci resembling pneumococci and we thought we might have a pneumococcus pleurisy, which is common enough; but cultures made from the fluid failed to show pneumococcus present. Consequently we were unable to diagnose the case as one of pneumococcus pleurisy. Furthermore, in Dr. Oliver's laboratory, the cultures made from the fluid showed bacilli resembling in morphology and cultural characteristics the typhoid bacilli; still that was considered uncertain since the blood twice failed to show Widal reaction, and it was especially doubtful as the patient had none of the clinical signs of having ever had, or having now, a typhoid infection. The next consideration was whether the infection were not a syphilitic one. This was a difficult point to decide because while he had a positive Wasserman reaction, the mere presence of the Wasserman does not show that the infection is active in the pleura. However, we put the man upon syphilitic treatment and he steadily improved and the fluid has practically disappeared under this plan of treatment. I present him merely as one of the problems we meet with in clinical diagnosis. To render the diagnosis more positive by inoculation of a guinea pig we attempted to-day to remove fluid, but unfortunately for diagnostic purposes, there is none left in the chest. The patient is still under syphilitic treatment.

### Examination of patient,

I will now present this other patient, who has absolutely no syphilitic history. This man came to the hospital complaining of stomach trouble; the history was that for a year previous to coming to the hospital he had had at intervals trouble with his stomach. This trouble had varied in character; a year or so ago there was vomiting of food, also cramps. For the last two months before coming for treatment he had had a poor appetite, a great deal of distress immediately after eating but no longer vomited food. The pain is dull in character, not sharp and violent, belches fluid occasionally during the process of digestion; he has lost twenty

pounds in two months, coincident with this disturbance of digestion. We expected to find much trouble with the stomach so a test meal was taken with the following result: Total acidity 20, no free HCl, only 4 parts combined HCl. A few days subsequently a second test was made which corresponded almost exactly with the first. Neither the stomach contents nor the feces showed occult blood, and a diagnosis such as cancer or ulcer had to be abandoned. There was no dilatation of the stomach except secondarily. We next found a large tumor mass extending across the upper abdomen, descending freely on deep inspiration, rounded, smooth, only moderately tender. By percussion it was possible to make out that this mass was the lower border of the liver. The spleen was also enlarged and palpable. The man had decidedly enlarged liver and spleen, and urine examination showed that he had also a chronic nephritis. The problem then became to find what could be back of these various pathological findings. Clinically the man had hypertrophic cirrhosis and chronic nephritis; but his history was clear as regards any of the usual causes for cirrhosis as he had practically never used alcohol. He was a hard working man, leading a regular life and there was no trouble in the heart. Dr. Oliver found in this case also a very positive Wasserman reaction; and we came to the conclusion that the cirrhosis was luetic in character. The patient was then placed upon syphilitic treatment under which he has so very greatly improved that the gastric condition is no longer in evidence, the liver and spleen have reduced in size, he feels well, and the temperature has become normal. I brought this patient for presentation because the case is a little out of the ordinary. It is interesting because we are finding more and more evidence of visceral lues, where formerly we did not know how to determine such cases without the Wasserman reaction.

Examination of patient.

**Discussion.**—George H. Evans: I would like to ask Dr. Cheney in reference to the diagnosis of the case of pleural effusion, whether or not a guinea pig had been injected with the pleural fluid. I would also like to ask him, assuming that the patient was a tuberculosis-free individual, on what ground he would assume that the first dose of tuberculin would so sensitize the patient that a second dose for diagnostic purposes would be useless.

Wm. Fitch Cheney: With regard to the guinea pig injection, we did not get one because the first time the fluid was spilled before we could get it into the guinea pig, and the second time we tried we could not find any fluid. I did not mean to infer that one milligram of the tuberculin would interfere with subsequent subcutaneous reaction, only it might be sufficient to sensitize the conjunctiva or the skin. If following this milligram injected subcutaneously we had obtained an ophthalmic reaction or a Von Pirquet reaction, would we have had the right to assume that the man had a tuberculosis? That was the point about which we hesitated.

#### Presentation of a Medical Case.

By H. D'ARCY POWER, M. D., San Francisco.

This patient came into my service at the Polyclinic when I took charge in April and I present him to you because, like Dr. Cheney's case, it brings out some of the difficulties of diagnosis. The case in point is that of a young man who, at the end of '08, four months after the contraction of a chancre which was followed by secondaries, was suddenly seized by a paraplegia affecting both the arms and legs, together with the loss of speech, lasting three weeks, and a disability of speech which lasted three months or more. Upon his recovery of sufficient mo-

tion of the arms and feet to make use of them, the arms showed marked loss of co-ordination, he was unable to carry anything to his mouth without spilling it; as the power in the feet was recovered, the gait was markedly ataxic and spastic, and an ataxia rather of the cerebellar form. Things continued so for many months; there was gradual improvement, until he was admitted to the City and County Hospital and was there for some time before I saw him. He was the subject of a great deal of discussion as to the nature of his case. The fundus of the eye, examined at the end of '09, showed hyperemia but no other changes. At the time that I saw him the eyes showed nystagmatoid movements, he had cerebellar-ataxic and spastic gait, great increase of all deep reflexes, loss of superficial reflexes, including the abdominal, had very, very marked hesitation in his speech of the semi-scanning character; some little of that has remained until the present time. The eye in April showed no true nystagmus. He had lost in the beginning quite considerably in weight and had lost the power over his bladder and rectum for two or three months. The question arose as to what we were dealing with—some seemed to think it was a case of cerebro-spinal syphilis; the onset of the symptoms within four months of the chancre was quite early, almost too early for the development of symptoms of this character, moreover the clinical picture was not that of cerebral lues. Hysteria was suggested but the presence of the Babinski reflex, and the history of bladder and rectal disturbance is exclusive; furthermore the cerebro-spinal fluid was examined, with a negative result; there was no lymphocytosis. Noguchi also negative. To me it seems that we are not dealing with a cerebrospinal syphilis but an early and atypical disseminated sclerosis. In its favor is the paraplegic onset, with rapid recovery of the arms, the condition of both deep and superficial reflexes, especially the loss of the abdominal, the typical gait, the history of intentional inco-ordination of the hands, the eye symptoms with the optic hyperemia, the nystagmatoid movements; in fact a diagnosis by exclusion narrows the issue to lues or disseminated sclerosis, with in my judgment the balance in favor of disseminated sclerosis.

#### Presentation of a Case of Multiple Sclerosis.

By LOUIS D. MEAD, M. D., San Francisco.

This patient is 64 years of age, was a laborer by occupation and a native of Norway. He knows nothing of his family history.

**Past History:** Had measles when 10 years of age, drank a great deal of brandy as a young man, denies venereal history, no history of acute infectious disease of any kind. In 1882 went to work in the Hawaiian Islands on a sugar plantation. The work was heavy and most of the time he was compelled to wade up to his knees in irrigation ditches. After a period of one year of such labor the present trouble began, i. e. at the age of 37.

**Present illness:** This commenced insidiously, with weakness in the lower limbs, unaccompanied by numbness or stiffness. His gait became unsteady on account of the gradually increasing weakness, was compelled to do lighter work. At the expiration of four years was compelled to leave the Islands and he sought relief at the City and County Hospital, where he remained for six months. At this time he complained of a certain amount of pain in the legs and across the lumbar region. He was able to walk with the aid of one cane. While in the hospital the trouble increased rapidly and he was compelled to use two canes, and later crutches. Tremor developed in both hands, which was intensified upon attempting to feed himself; no convulsions, but there



were periods lasting several hours at a time when he was in semi-conscious condition. During this time he suffered from incontinence of urine and feces, which has since disappeared; no disturbance of speech.

After six months he was transferred to the Alms House. In Dec., 1907, he was readmitted to the City and County Hospital. He has been compelled to use a wheel chair since 1888. He complains of no pain except in the legs when occasionally they are attacked by convulsive movements. A number of years ago there was blurred vision, but now the eyesight is excellent. There is weakness in the lumbar muscles; hearing is good; no girdle sensation, bladder or rectal symptoms.

Physical examination: Fairly well nourished, expression alert, speech is slow, halting and in a monotone, i. e. fairly well marked scanning speech; pupils are small, equal and react sluggishly to light and accommodation. Nystagmus is not marked, eye ground normal, no involvement of the cranial nerves. Upper extremities; there is a coarse, wavy tremor of both upper extremities at the rapidity of from 5 to 7 per second, the motion is lateral in the right hand and vertical in the left hand, especially in the index, middle and ring fingers. Muscular power fairly good. Lower extremities; there is a flaccid paralysis of both extremities, double drop foot, the only motion remaining is a slight power of extension of the leg on the thigh. Reflexes; both superficial and deep entirely abolished. Very little atrophy or vasomotor disturbance.

As to the clinical diagnosis in this case, I feel that we are justified in considering it an advanced case of multiple sclerosis. As a rule this disease begins between the tenth and thirty-first year, but no age is exempt, in the present instance the onset was at 37 years of age. Multiple sclerosis is not an inherited disease, neither is this; it has no relation to syphilis, nor is there any history of syphilis in this case. It usually follows cold, trauma or an acute infectious disease; in this case we have the well marked history of exposure. Multiple sclerosis is gradual in onset, usually beginning with numbness or weakness in the legs, spastic or cerebellar gait, with marked increased knee jerks and Babinski signs. The present case does not conform to these symptoms; it has gone beyond the stage of spasticity and is followed by the flaccid paralysis noted. The intention tremor is one of the characteristic symptoms of the disease, as is also the scanning speech. The tremor of the head somewhat similar to senile tremor is often noted in cases of multiple sclerosis, but this condition is not present here. Nystagmus is usually an early and persistent symptom, occurring in about 75 per cent of the cases; here the nystagmus is slight and can be practically disregarded. Temporary attacks of blindness are often noted in the early stages of this disease; in the present case attacks of blurred vision were present. Optic atrophy is frequently noted, occurring, according to Utthoff, in about 52 per cent of the cases; the symptom is absent in this case. Paresthesias are frequently noted while anesthesia is never present, and similar conditions are noted in this case.

From the presence of the marked intention tremor, the slight nystagmus and the fairly characteristic scanning speech, and as we are able to exclude practically all of the other nervous diseases, I feel that we are justified in considering this clinically a case of multiple sclerosis.

**Discussion.**—H. C. McClenahan. Of course, in the discussion of the syndrome, that we generally call multiple sclerosis, much depends upon our pathological conception of the clinical picture we

include in multiple sclerosis. Strümpel says that: "When we find a symptom complex, that we are unable to fit to any other disease of the central nervous system, it is a good plan to call it multiple sclerosis." I will state, however, that I have never accused multiple sclerosis of a flaccid paralysis of the lower limbs. It is new to me, and the man has apparently an Argyle Robinson pupil, at least the pupils seem sluggish to light.

The case Dr. Power has presented I saw at the City and County Hospital, and I thought at that time that the man was suffering from cerebro-spinal syphilis, and for the reason that the symptoms came on very abruptly, which is not so characteristic of multiple sclerosis, in our clinical conception of it. It is an insidious disease which comes on rather intermittently, instead of gradually or by sudden attacks. The pathological condition of multiple sclerosis of course cannot be diagnosed clinically, and whether this case is due to syphilis or not is the question. Owing to the abruptness of the onset and the great improvement, I think the case has many symptoms of cerebro-spinal syphilis.

Meeting of November 8, 1910.

### The Etiological Significance of Persistent Affective States in Neurasthenia.

By G. V. HAMILTON, M. D., Montecito.

The current generalization that ascribes neurasthenia to mental and physical strain must at least be qualified with reference to the fact that a considerable percentage of cases give histories of having weathered without damage the major griefs, worries, responsibilities and activity-demands of life, only to have developed, after a considerable interval, and in the midst of an apparently comfortable situation, the characteristic symptoms of neurasthenia. It must be admitted, therefore, that if mental and physical strain are causes of this disorder, their etiological value often bears no consistent relation, in a given individual, to their intensity. Unless one be prepared to admit that the etiology of neurasthenia is wholly implicit in the make-up of its victims, it follows that progress in our understanding of the disorder demands, first of all, ever more careful analyses of the situations in which it arises.

The present communication is an attempt to point out an element which is common to a great diversity of concrete situations that appear in neurasthenic histories, and to assign to this element a value in terms of an interesting psycho-physical mechanism. The presentation of a typical case will serve to illustrate the intention of the discussion that follows:

Mrs. X, age 31 years, American, widow. Illustrious. Family and early personal history negative. The patient was a physically robust child, and presented no nervous traits that can be recalled. Until the onset of the present illness she habitually entered into the natural interests and activities of her life with great zest, and was quite free from marked fluctuations of mood, self-examination, dreaminess, seclusiveness, irritability, etc. Her ultimate breakdown was a source of much surprise to her friends, who had never thought of her as having "nerves."

She was married at 20, and a year later bore a child which now, at 10 years, presents a good history with respect to both mental and physical development. The patient's married life was happy and uneventful until its termination six years ago by the death of her husband. She bore his loss with great fortitude, and at once set about to support her child and herself, to which end she made a practical application of her artistic ability. The griefs, worries, disappointments and hard work incident to this period of her life brought no discoverable impairment.

At 30 she was earning a comfortable salary as an illustrator, directing her son's education with satisfaction to herself, and meeting the demands of a pleasant social life. Nevertheless, six months later she began to feel excessively tired during the morning hours, and to dread, at any time of the day, even the simplest demands for mental and physical exertion. Whenever she tried to read, her attention soon wandered, her eyes grew tired, and the back of her head "felt tight." Slight physical exertion brought an inordinate sense of fatigue. Her emotional reactions were too easily aroused, and she often found herself weeping from trivial causes. She had the usual neurasthenic parasthesias, headache, backache and "nervous indigestion."

Physical examination revealed a slight degree of anteroversion of the uterus. The patient stated that since the onset of her present nervous symptoms she had menstruated irregularly and too freely. The neurological examination was negative in its results. Association tests gave no evidence of pathogenic suppressions and substitutions.

At the first interview the patient was inclined to belittle her symptoms as such, but was much worried lest her domination by "imaginary ailments" would lead to insanity. She attributed her illness to over-exertion, an explanation which was suggested to her by the fact that she had spent an active winter in the pursuit of her profession and in a social way.

In view of the fact that this physically robust woman of 31 had passed through a far more strenuous and difficult period six years before, and had emerged from it unimpaired, it seemed incredible that she should now be thrown into a neurasthenia by meeting the pleasant and by no means excessive demands of her everyday life. After considerable probing a more satisfactory explanation was obtained.

It seems that for several months before the onset of her present illness she was courted by a man who developed a deep affection for her, and whose feeling she reciprocated. The suitor, who is at once very conscientious and very undecided in all serious matters, expressed a fear that he, a man of 50, had no right to marry a woman of 30. He admitted the sincerity of her present affection for him, but was much harassed by a fear that some day she would "wake up and regret her tie to an old man." The patient, on the other hand, was confident of her ability to ignore the age difference for all time, and was often momentarily successful in convincing him of this. But as his affection for her increased he grew more solicitous for her future welfare, and more painfully undecided. In the midst of this situation the patient became neurasthenic.

Her utter lack of knowledge of psychology as it is currently presented by Immanuelists, exponents of "new thought" and other amateurs in the field of applied psychology, rendered the patient an especially valuable subject for study. Her introspections were undistorted by semi-scientific preconceptions, hence she was able to give facts, rather than interpretations. On this basis I was able to obtain from her the following account of her modes of inner adjustment to the love affair.

The patient stated, in substance, that as long as art and her son were the primary values of her life she was able to obtain from these values the kind of satisfaction that met her deepest mental needs. When, however, art and her son were relegated to the rank of secondary values by the appearance of the man whom she loved and wanted to marry, she felt a great sense of emptiness whenever she pictured to herself a life without this man. As his indecision increased, and left her without prospect of marriage to look forward to as a certainty, she

could conceive of no alternate source of satisfaction. There followed a continuously present feeling of emptiness and of inner tension. She assured me that if her suitor were to die or to marry another woman she could adjust herself to either contingency as to one of the unhelpable things of life; she ascribed her feeling of tension to her ever-present state of unsatisfaction.

We have in this record a sequence of events from initial environmental factors to terminal symptom-reactions which can be isolated in form from a surprisingly large percentage of neurasthenic histories. Our problem, then, requires us to formulate the successive members of the sequence and to search for such causal relations as may obtain among these various members. This calls for an examination of (1) that primitive tendency of human mental life which impels the individual to seek for a definition of values to be pursued; (2) the nature of the affective reactions that are traceable to thwartings of this instinct; and (3) the psychophysical consequences of such reactions.

(1) As Judd (a) has pointed out, the whole scheme of mental evolution revolves about the tendency of the human mind to conceive ever higher values, which it can obtain only by effecting changes in its environment. Now, sexual-romantic values are the fairly constant sources of adolescent satisfaction, hence the information required for our present purposes can be most easily obtained by a brief interrogation of this period of individual development. The affective life of the average youth clearly shows that his greatest mental need is met by the satisfaction that he derives from activities which promise to advance him toward a conceived sexual-romantic goal. In the beginning it is sufficient to behave without awkwardness in the presence of young girls; later, the youth requires the tangible evidence of a love affair. Now let the limitations of his environment, or of his own make-up as he conceives it, thwart his efforts to obtain current sexual-romantic satisfactions, and there follows an affective state which is as clean-cut and as typical in its relation of effect to cause as can be found anywhere else in nature. The thwarted youth finds all at once that life is an empty, painfully unhappy and burdensome affair. He is dominated by a restless, unsatisfied feeling, which robs him of his ability to enjoy his usual secondary values. Along with this there is an inner tension which, though difficult to describe, is a most real and self-assertive subjective experience. Fortunately, some kind of readjustment usually follows, and the thwarted value-defining, value-pursuing instinct asserts itself anew in the form of satisfying activities.

Contrary to the implications of Freud's doctrines, my experience leads me to believe that as the individual passes from adolescence to maturity he is apt to carry with him as determinants of his further mental life merely habits of reacting to his fundamental needs: indeed, I prefer to go even further than Adolf Meyer (b) has gone in ascribing pathogenic value to these habit-reactions: they, I believe, and not the memories of the sexual experiences that we have suppressed, are usually the specific causes of our mental difficulties. As the central value of an individual's life shifts from the sexual-romantic to some other basis, his spontaneous activities are manifested in other directions than the sexual, and an examination of these activities must be made before we can safely decide what are the sources to which he looks for his deeper satisfaction. In women it is often the gregarious instinct that plays the determining role, so that removal from a familiar neighborhood to one where pleasant social contacts with other women are unobtainable may lead to the subjective experiences described above, viz.,



restlessness, emptiness, inner tension. In another type of individual the dominant instinct of adult life finds expression in a vital need of activities which shall be relevant to a conceived achievement-goal. The man who does constructive work along any lines is usually held to his task by an ever-recurring hunger for the satisfaction that he can obtain only from his special modes of activity. It is beyond the scope of the present communication to enumerate the kinds of values that may become the central needs of human mental life after the sexual-romantic instinct loses its dominant force. The point that is essential to our present purpose is this: it is intrinsically a part of our mental life to construct a group of closely related interests or values from which alone the vital satisfactions can be obtained.

(2) What is the nature of the affective states that occur in reaction to situations which thwart the individual's efforts to draw upon these values for satisfaction? According to Wundt's (c) famous tridimensional theory of feelings, these components of consciousness are possessed of three pairs of opposite qualities or attributes, viz., pleasantness and its opposite (unlust), excitement and depression, tension and relaxation. Thus the feeling that I experience in reaction to meeting a colleague to whom I wish to unfold my conceptions of neurasthenia is possessed (according to Wundt's theory) of the following qualities: pleasantness, excitement and a moderate degree of tension. Or, when I return to my home after a strenuous day in town and find a comfortable chair from which to observe the deepening purple of the mountains, my state of feeling has the qualities of pleasantness, mild depression, and relaxation.

A closer examination of the tension-relaxation pair of opposites reveals the fact that, as Titchener (d) suggests, they are not **qualities of feeling**, but **independent sensations**. For example, the pleasurable feeling when I meet my colleague is a totally different kind of event in my consciousness from that informative and purely sensory conscious event which makes me aware of an organic consequence (the tension-sensation) of the pleasurable, exciting feeling. Everyday life affords numerous examples of the psychophysical sequence which has for its members (1) a presentation or representation, (2) a state of feeling, (3) organic consequences of this feeling, (4) sensations which inform the individual of the organic event. Another example will serve to make this clear in its intention.

A surgeon who has just completed an operation falls to wondering if the stringy mass that he severed a moment ago could have been a ureter. There follows in the surgeon's consciousness a highly disagreeable feeling, then something physical happens which produces an uncomfortable sensation referable to the precordial region.

Another characteristic of affective states which is highly important for our understanding of neurasthenia is their tendency to persist in the background of consciousness long after the idea that gave rise to them has ceased to be central in the field of attention. Every physician knows that he may carry home with him a vague, uncomfortable feeling which may not be at all appropriate to what now occupies his thoughts. A moment's reflection over the events of the day enables him to recall that at some time during his office hours he blundered in his efforts to reassure a nervous patient. The patient perceived and reacted to the blunder, and the physician thought for a moment, "I am stupid and lacking in tact—my practice will fall away from me if I am not more on the alert!" etc. But the

idea had to be dismissed before it could be squared and made acceptable, in one way or another, to the main body of his consciousness.

Now, it is quite possible that in such cases there is at work the psychological mechanism to which Freud ascribes the repressions, displacements, substitutions and independent activities of emotions attendant on ideas which are unacceptable to consciousness as we know it in terms of personal experience. Whoever has read and accepted Freud's "Psychopathology of Everyday Life" (e) would doubtless place this interpretation on the persistence of vaguely unpleasant affective states which so often appear incongruous with the central interests of the moment; and this consideration may justify Waterman's (f) assumption that neurasthenic mental states are traceable to true dissociation. But I believe that wherever it is possible to make psychological analyses in terms of mental life as we know it directly, it is well to avoid any appeal to an hypothetically constructed "unconscious" or "co-conscious" mechanism. And in the present instance it seems to me to be sufficient to state the facts of affective persistence (as they are found in normal life and in neurasthenia), in terms of known mental reactive tendencies. I would therefore subject these facts to the following formulation:

An unsatisfactory situation which does not lead to definite and acceptable readjustments on the part of the individual into whose experience it enters is apt to produce an affective reaction which persists in consciousness long after awareness of the situation itself has been entirely replaced by new presentations.

That in the case of neurasthenia there is no necessity of going further than this in the assumption of dissociation is warranted, I believe, by facts which are accessible to any psychopathologist who has time and patience at his disposal. I have found that once my neurasthenics are convinced of the value of absolute frankness in their attitude toward themselves, their families and their physician, they are able to recall, without resorting to artificial aids (e. g., dream analyses, free association, hypnoidal states), the specific experiences to which their dominant affective states are attributable. Thus, a clergyman whose neurasthenia was accompanied by the usual dominant affective tone of "emptiness," restlessness and unsatisfied longing, confessed to me that this affective state dated from the "first beginnings of a conviction—which he had never dared to face—that the Christ whom he was required to defend as a member of the Holy Trinity was, after all, only one of the world's great men." He feared that if he were to attempt to square himself with this vaguely formulated conviction he would force himself out of the only profession in which he could gain a livelihood.

Another neurasthenic, a rather garrulous and tiresome woman of 55, ultimately confessed to me that she had long known, "in the back of her head," that the daughter with whom she makes her home, and on whom she is dependent for her only intimate social contacts, is bored whenever she, the patient, talks. The kindness of the daughter in all other matters, and her well-meant efforts to conceal the fact that her mother does bore her, made it difficult for the patient to face the issue frankly. "My conversation bores my daughter," was an idea which she never allowed to become sufficiently focal in consciousness to permit healthy readjustments.

Still another neurasthenic, who is exceedingly loyal to his wife, even in the privacy of his own thoughts, admitted that the intensity of his ever-present uncomfortable affective state varied directly with the degree to which his wife gave expression

to her habitual tendency to contradict him in all small matters. For example, they would draw up before the fire to spend a comfortable evening together, and he would say, "I enjoyed my supper very much—especially the peas." To this the wife would respond, from sheer habit, and not unkindly, "Dear me! Do you think they were good? They were altogether too hard; you must tell the grocer to be more careful when he fills our order." An accentuation of his uneasy affective state would immediately follow, and long after his attention had been diverted to other interests he would be conscious of the increase in his "feeling of emptiness."

(3) The final step in our analysis of the sequence that begins with the type of situation in which neurasthenia so frequently develops, and ends with the full manifestation of this disorder, requires an examination of the inner tension to which I have referred as an organic consequence of certain affective states.

It is my practice to ask of every neurasthenic, "Do you feel easy and relaxed and comfortable when you sit down, with your own approval, to read the evening paper?" This question usually elicits a negative response, and the patient is apt to add that, on the contrary, he is never wholly free from an inner tension which makes relaxation impossible. The most illuminating description of this inner tension that I have yet received from a patient is as follows: "It is like, in quality, the tension that accompanies anger; but much less intense in degree."

If we consider for a moment the physical after-effects of anger, we shall discover in these a most suggestive resemblance to the cardinal symptoms of neurasthenia: both the individual whose anger has just faded, and the neurasthenic, experience an uncomfortable sense of exhaustion, inability to concentrate the attention, a feeling of psychomotor inadequacy, inner tension and, not infrequently, a disturbance of the total organic sensation referable to the head and neck regions. One need grant only two assumptions—both of which are justified, I believe, by facts of introspection—in order to arrive at a definite formulation of a highly important factor concerned in the production of neurasthenia. These assumptions are, (1) that the tension accompanying persistent affective states differs from emotional tension only in degree of intensity and in duration, and (2) that the tension of these persistent affective states may produce, in spite of their low degree of intensity, the same types of physiological disturbance that are traceable to emotional tension.

The usual rapid discharge of an emotion permits a return to the normal within a relatively limited time, whilst in neurasthenia, continuation of the secondary disturbances is insured by a tendency of the tension-producing affective states to persist. The final formulation of the psychological sequence under discussion is, therefore, as follows:

(1) A situation or series of situations which, though unfavorable to the primitive mental needs of the patient, do not lead to adequate and satisfactory readjustments.

(2) A consequent persistence of the affective state thus conditioned.

(3) Organic consequences of the persistent affective state (which are made known to consciousness in terms of tension-sensation).

(4) Secondary effects of these "organic consequences," which effects constitute the cardinal symptoms of neurasthenia, viz.: marked sense of fatigue, subjective psychomotor inadequacy, and disturbances of voluntary attention.

To what extent the variable symptoms of neurasthenia may be due to the chain of psychophysical causes just enumerated is a matter for clinical and

laboratory research; the present communication is offered merely as a suggestion for further study along familiar lines, and does not pretend to account for more than a certain percentage of the cases that are currently diagnosed "Neurasthenia."

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**Discussion.** II. C. McClenahan: Dr. Hamilton has given us a very interesting analysis of cases of so-called sexual neurasthenia. The most interesting point that has always impressed me in these cases is the question as to whether these various morbid psychological manifestations are a cause or a result of the condition. The treatment by suggestion of course, is responsible for many apparent curative results, and this, regardless of the method employed. Even physical methods are apparently not a factor in the premanency of the cure. These cases get cured but the trouble is they won't stay cured.

Philip King Brown: This subject admits of a wide field for discussion. In these cases I always make it a point in reasoning with the patients as to the necessity of this analysis of cases that Dr. Hamilton has made so plain to us, to illustrate by a few examples and so bring it home to the mind of the laity. A person waking in the night hears a strange sound and immediately thinks of burglars. There is a reaction of this sound out of proportion to the actual sound, and the state of mind existing at the time gives it entirely undue importance. There is fear, anxiety, confusion or alarm, or a mixture of all these steadily growing worse as the sound continues. It takes very little reasoning sometimes if it can be applied opportunely to straighten that thing out, although just as long as the person thinks there is a burglar in the house, the reaction continues. However, suppose the continuance of that sound suggests to the person that it is not the kind of sound made by a burglar in walking stealthily or endeavoring to pick a lock or to bore a hole. Finally, as the mind wanders over possibilities, suppose the thought flashes across it that the sound is caused merely by the flapping of a curtain in the wind or water dropping into a sink. Immediately the reasonableness of the thing and its full explanation of the phenomenon, quiet fear and the person is at rest. Such a thing suggests to us both the way disturbances are brought about and the way the cure is effected. A reasonable attitude of the person toward the thing which exists without a change in the existence of that thing, brings about the cure. It is not the altered conditions but the altered point of view of the person.

Another illustration is that of a horse that shies. If the horse is put into the hands of unskilled persons he will shy at an engine or an automobile and he will soon pass into the stage of not only shying at anything that is around but of looking for something to shy at. Put the horse into the hands of someone who understands the animal and he knows just what to do. He begins by taking the horse away and giving him a rest. He then takes that perfectly useless animal and restrains its nervous system. The trainer, taking advantage of his knowledge of horses and their habits, and the confidence that he inspires in the horse, so carefully carries



out his system of re-education that the horse will finally walk up to the automobile and will not shy at anything. That is the principle that underlies the cure of these cases. We cannot treat nervous cases, in view of the enormous insight into the whole situation that psychology and psycho-analysis have brought out, without an appreciation of the work contributed to our present knowledge of functional diseases by Freud, Janet, Morton Prince, DuBois and Sidis.

Clarence Quinan: I believe that suggestive treatment in these nervous states is a very dangerous experiment,—decidedly one that we should avoid. I would like to ask Dr. Hamilton whether his patient was subject to insomnia; indeed I am curious to know how frequently he has noted this symptom among his psychasthenic patients.

Langley Porter: I would like to hear from Dr. Hamilton more about Freud's statements regarding hysterical suppressions and displacements. As Dr. Arnold has just said, we are all more or less neurasthenic, but there is a definite prophylaxis for neurasthenia and it lies in the providing of proper surroundings and training for our children. Nearly all cases of neurasthenia can be traced to some displacement which took place during childhood; children cannot be treated as adults and come to adult life with a perfectly normal reaction between their nervous system and their environment.

Gilbert V. Hamilton, Santa Barbara: I beg to correct the impression that I have been discussing sexual neurasthenia; on the contrary I have sought to show that the persistent unsatisfied feelings of this disorder may not be at all related to the sexual life in some cases. The assumption that subconscious or unconscious mechanisms may play a role in these cases is based upon a purely hypothetical conception, it must be remembered, since direct, uninterpreted experience discloses only one general kind of consciousness—that which occurs to us when we are wide awake, or drunk, or dreaming, etc. It cannot be denied, of course, that many of our experiences cannot be brought into memory by the ordinary processes of recall; but that these may have the etiological value ascribed to them by Freud has not yet been fully established, I believe. My experience with normal subjects whom I have subjected to psycho-analysis has shown me that in every person it is possible to rekindle memories which have long since passed beyond voluntary recall, thus establishing their associative connections with consciousness. There can be no doubt that Freud has yet to prove that his method enables us to ascribe casual relations to that which is, in a psychological sense, associative continuity from present symptom to ancient experience. In adducing the "proof of the pudding" argument we ignore the possibility that to restore a suppressed sexual experience to the memory of an hysterical patient, may have only the same kind of therapeutic value that a bone from the little finger of a saint has for the devout Catholic.

#### Eye, Ear, Nose and Throat Section, November 22. Presentation of a Case.

By KASPAR PISCHEL, M. D., San Francisco.

Dr. Pischel showed a case of symblepharon in which he used the foreskin to cover the socket for an artificial eye. The patient had lost his left eye 18 years ago, being burned by molten metal. Both eyelids were grown together entirely. A fine opening through which much pus was discharged showed that some mucous membrane was still left. After severing the lids and the removal of the small, shrunken eyeball a circumcision was made and part of the foreskin put in the wound, pressed firmly into it by a paraffin ball after the borders had been

anchored to the lids. The operation had been performed ten days ago and the appearance of the skin justified the hope that it would remain alive.

**Discussion.** M. W. Frederick: If Dr. Pischel is successful in this undertaking he certainly has achieved something worth achieving. This is one of the most difficult things in eye surgery; I know for I have just been through it myself. A boy was brought to me five or six months ago, whose eye had been injured with hot water; a general surgeon twice tried to make a socket. I cleared out the socket, took the skin graft from the back of the arm and tied the graft to a ball of gauze saturated with liquid vaseline. The ball was inserted into the socket and allowed to remain there four days. There was plenty of skin graft and the result was a very good one. Although I made a very large cavity and cleaned out a lot of tissue, at the end of three weeks the cavity had closed up so tightly that there was absolutely no question of putting in a glass eye. I proposed a further operation, intending to try a Wolf graft, but the parents did not want to take the chance as he had been under the anesthetic three times. I must say that this idea of Dr. Pischel is quite new to me.

## SOCIETY REPORTS

### ALAMEDA COUNTY.

The Alameda County Medical Society held its regular meeting at 127 Telegraph avenue, October 18, 1910, at 8:30 p. m.

The topic of the evening was Diseases of Childhood.

Program arranged by Dr. H. N. Rowell.

Report of a case of hydatidiform mole with specimens by Dr. W. S. Porter, was omitted, Dr. Porter being absent.

The following program with the exception of Dr. Dudley Smith's paper, was given:

I. Acute Articular Rheumatism in Childhood. By Dr. W. O. Smith.

II. Intestinal Hemorrhages in the Newborn with Demonstrations. By Dr. Daniel Crosby.

III. Report of a case of Congenital Megacolon with demonstrations. By Dr. Dudley Smith.

IV. Acute Poliomyelites. By Dr. H. N. Rowell.

These subjects proved exceedingly interesting and brought out a full discussion. The opinion that anterior, or better, infectious poliomyelites should be made a reportable and quarantinable disease was unanimous, and many suggestions as how best to bring this about were made and discussed. A motion prevailed that a committee be appointed to confer with the Board of Supervisors with regard to making Infectious Poliomyelites a reportable disease.

The following resolution, introduced by Dr. C. A. Buckel, was adopted:

"Owing to the fact that no suitable provision is made for the development and education of defective children in the public schools of California, the Alameda County Medical Society respectfully asks the authorities of the State University to include practical training in pathological psychology in the Department of Pedagogy. It is the want of scientifically trained teachers who have a love for teaching children that prevents the segregation of defective children into special classes where the necessary appliances can be used for their highest development.

"Therefore, we send this petition for consideration and hope for speedy and favorable action."

P. S. NUSBAUMER,  
Secretary.

**SONOMA COUNTY.**

The Sonoma County Medical Society held its monthly meeting Thursday evening, Dec. 8th, in Santa Rosa, at the residence of Dr. Jackson Temple, Secretary of the Society. Dr. F. O. Pryor of Santa Rosa led a most interesting discussion of Ethics, in which all present joined. Dr. J. H. McLeod demonstrated a specimen, the pathology of which was explained by Dr. Temple. Officers for the ensuing term were elected as follows: President, Dr. J. W. Seawell, Healdsburg; vice-president, R. M. Bonar, Santa Rosa; secretary, Jackson Temple, Santa Rosa; treasurer, F. O. Pryor, Santa Rosa. Dr. S. Z. Peoples of Petaluma was elected delegate to the State Convention, with Dr. Elizabeth Yates as alternate. Dr. J. W. Scamell, of Windsor, censor.

After the business of the meeting was disposed of, all adjourned to the dining room, where a sumptuous repast was served in honor of the newly elected and retiring officers.

**YOLO COUNTY.**

The Yolo County Medical Society held its regular meeting for October on the 4th, at the Oaks Club. Dr. W. F. Cheney of San Francisco read a paper on "Duodenal Ulcer" which was of great interest and excited considerable discussion.

On December 6th, Dr. Emile Schmoll of San Francisco presented an excellent paper on "The Differential Diagnosis and Treatment of Heart Lesions."

The Yolo County Society for Medical Improvement met on the evening of Dec. 6th at "The Oak's Club." Dr. W. E. Bates was elected president, Dr. C. H. Fairchild, vice-president, and Dr. Frances Louise Newton, secretary and treasurer.

Dr. Emile Schmoll read a paper on "Therapeutics of Digitatis." Dr. Elizabeth Frances Joyce of Winters and Dr. E. K. Ward of Arbuckle, were admitted to membership.

Assemblyman Lawrence Wilson was present and promised to protect the vaccination law and other medical laws.

FRANCES LOUISE NEWTON, Secretary.

**COOPER COLLEGE SCIENCE CLUB.**

On Dec. 5, 1910, the regular monthly meeting of the Cooper College Science Club was held.

Scientific program:

1—Remarks on Intra-Thoracic Surgery with Lantern Slide Demonstration, Dudley Tait.

2—Discussion, Wallace I. Terry, Emmet Rixford, Raymond Russ, Sterling Bunnell, H. B. A. Kugeler, Leo Eloesser, Dudley Tait.

Dr. Leo Eloesser and Dr. Arthur H. Reinstein were elected to membership.

Refreshments were served at the close of the program.

**ACADEMY OF MEDICINE.**

The regular monthly meeting of the California Academy of Medicine was held Nov. 25, 1910, in the Library of the San Francisco County Medical Society.

Scientific program:

1—Perineal Prostatectomy with Report of Cases, R. L. Rigdon.

2—The Occurrence of Edema in Experimental Chronic Nephritis, E. C. Dickson.

At the conclusion of the program refreshments were served.

**NOTICE.**

Beginning January 1, 1911, the drug stores of San Francisco will be closed on Sunday from 1 to 5 P. M.

**OF INTEREST.**

Information in regard to arrival of "606" will be found on page xviii. Bowerman's Pharmacy.

**ERRATA IN DISCUSSION BY DR. WELTY.**

Typographical error, page 392, 2nd column, 10th line from bottom; 90% instead of 99%.

Page 393, 1st column, 14th line from top; 20% instead of 35%.

**Notice!**

The Register and Directory for 1910 was delivered in November.

Please look through your copy and advise us of any corrections or changes of address.

Please give us the benefit of your criticisms or suggestions for future editions.

**BOOK REVIEWS**

**The Essentials of Materia Medica and Therapeutics for Nurses.** By John Foote, M. D. J. B. Lippincott Company, Philadelphia, 1910.

Intended "to simplify the study of therapeutics for nurses," this small volume is composed of two parts. The first half contains a rambling dissertation on "how medicines act" and "the classification and uses of drugs and medicines." The treatment of "bilious attacks" and the destruction of "parasitic insects" are given considerable space; chronic mercurial poisoning is called salivation; the virtues of the coal tar products receive flattering attention.

Is it surprising that accidents continue to happen when nurses are instructed "to give a high enema through a soft rubber rectal tube which passes into the large bowel for six inches or more?" The second half of the volume, in the form of a list of commonly used drugs, reveals the idea that prompted its publication. Here the nurse may find an interminable number of proprietary medicines, among which the following may be quoted: Alkalithia, apiolin, ammonol, arsenauro, borolyptol, colchisal, euthymol, Pearson's creolin, creosotal, dioxygen, glycozone, formin, helmitol, holocaine hydrochloride, hydrozone, ingluvin, peptenzyme, pepto-mangan (Gude), phenalgin, stypticin, theocin, trikresol, etc., etc.

The author's detailed description of the properties and indications of each of the above and many more similar patented preparations may extend the nurse's field of usefulness, especially in the opinion of makers of proprietary medicines; but it may not be out of order to enquire if the sale of such dubious pharmaceutical products has become so far exhausted in the domain of the medical practitioner that the predatory manufacturer finds it expedient to substitute the unsuspecting nurse for detail men and pseudo-medical journals? The reviewer can find nothing in this volume to warrant its being accorded a place in the library of the San Francisco Medical Society, and, therefore, recommends that it be returned forthwith to the publisher. D. T.

**General Medicine.** Billings and Salisbury. Vols. I and VI. Year Book Publishers, 1910.

These little volumes present an excellent summary of the year's advances in general medicine. The editors, with their usual skill, have sifted through the world's literature, separating the wheat from the chaff, so that for those unable to keep abreast of the times by a careful study of the current journals, this work is of great value.

R. B.



**Pediatrics—Orthopedic Surgery.** By Abt and Ridlon. Practical Medicine Series, 1910, Volume VII. The Year Book Publishers, Chicago.

That portion of the book which is devoted to Orthopaedics represents, mainly, a review and an abridgment of about seventy articles of orthopaedic interest which have appeared in various medical journals within the past year, with the critical approval, or disapproval, of the author tersely stated.

Undoubtedly the amount of time and energy expended in the production of the work was considerable. Many of the articles considered represent phases of theory, or of fact, or of technique, advanced by men whose reputations are international.

The book is probably not intended to be a students' textbook but rather does it appear to be an attempt upon the part of the author to direct the attention of the reader to the very recent contributions to the subject of Orthopaedics.

The ground is well covered; the effort is exemplary and the conclusions not disappointing.

C. C. C.

**Applied Anatomy.**—The Construction of the Human Body Considered in Relation to Its Functions, Diseases and Injuries. By Gwilym G. Davis, M. D., Associate Professor of Applied Anatomy University of Pennsylvania. Pp. 630, with 630 illustrations by Erwin F. Faber, Philadelphia. J. B. Lippincott Co. 1910.

The author starts out with the scalp and literally goes from the crown of the head to the soles of the feet, handling each and every part, skull, meninges, brain, face, mouth, throat, neck, thorax, etc., down the line not only as the title suggests but also brings out the indications for the manner of operating. The illustrations show great care in detail, especially those taken from the cadaver, making things much plainer to the student than the operating surgeon finds them and they are numerous and diverse enough to cover the field pretty thoroughly and prepare one for almost anything one would actually find. The chapters on dislocations and fractures are very clear and comprehensive as are the illustrations. The portions devoted to the center of equilibrium and frozen sections also deserve special mention. In his preface the author says: "A person who has studied the subject only from a systematic standpoint cannot utilize and apply the knowledge so acquired, unless he considers its relation to the various affections encountered in practice." Therefore the book can be of value and interest to third and fourth year students who perhaps have considered anatomy as dry and uninteresting and enable them to review it intelligently. It is a great aid to the busy surgeon who only finds occasional moments in which he can refresh his memory. A criticism of the book can on the whole only be a favorable one and the author deserves much credit for the concise yet comprehensive and scientific manner in which he has handled his subject and covered so large a field in one volume. I have found books similar to this in France and Germany, but do not think they are in widespread use here and a perusal of this one convinces me that the author has filled a place heretofore left wanting.

G. J. B.

## CALIFORNIA STATE BOARD OF HEALTH ANNOUNCEMENT.

### Syphilis and Gonococcus Infections to Be Reportable.

Whereas, It is the duty of the California State Board of Health to encourage and maintain a progressive campaign against all communicable and avoidable diseases which may endanger the health of the citizens of the State; and

Whereas, The communicable diseases due to syphilis and to gonococcus infections are among the

most prevalent and most harmful known to medical science; and

Whereas, The policy of the State Board of Health, of physicians, and of educators, has hitherto been one of silence on this subject; therefore, be it

Resolved, That the California State Board of Health declares that, beginning January 1, 1911, syphilis and gonococcus infections shall be reportable, and shall be placed on the list of communicable diseases which local boards of health and health officers are required to report to the Secretary; it being provided, however, that until further action by this Board, physicians may report the facts concerning these diseases by office numbers instead of names of patients; be it further

Resolved, That this Board officially calls the attention of the citizens of California to the contagious and infectious nature of these diseases, and requests their co-operation in combating them by every available means—educational, sanitary, medical, social, and moral.

By order of the Board.

Signed: WILLIAM F. SNOW, Secretary.  
Sacramento, Cal., October 1, 1910.

## CLASSIFICATION OF INSANITY AS ADOPTED BY THE STATE LUNACY COMMISSION —IN FORCE SINCE JULY 1, 1908.

### Paranoid States.

- a—Chronic systematized delusions of persecution.
- b—Chronic delusions of persecution of unsystematized form.

### Manic-Depressive Insanity.

- a—Manic attacks.
- b—Depressive attacks.
- c—Mixed conditions.

### Conditions allied to Manic-Depressive Insanity.

- a—Excitements.
- b—Depressions.

### General Paresis.

- a—Cerebral form.
- b—Tabetic form.

### Dementia Precox.

- a—Paranoid form.
- b—Simple form.
- c—Catatonic form.

### Allied to Dementia Precox:

### Involution Melancholia.

### Senile Psychoses.

### Autotoxic, Infective or Exhaustive Psychoses.

- a—Thyroidogenous disorders.
- b—Uremic, eclamptic, diabetic, gastro-intestinal disorders.
- c—Febrile and post-febrile deleria.
- d—Exhaustive deleria and kindred psychoses.

### Psychoses due to Intoxication.

- a—Alcoholic psychoses.
- b—Delirium tremens.
- c—Alcoholic paranoid conditions.
- d—Drug and other toxic psychoses.

### Psychoses with more or less definite brain disease.

- a—Brain tumor.
- b—Traumatic psychoses.
- c—Distinct focal cerebral disease.
- d—Diffuse vascular brain lesions.
- e—Brain Syphilis.

### Psychoses belonging to definite neuroses of constitution.

- a—Neurasthenia.
- b—Psychasthenic.
- c—Epileptic.
- d—Hysterical.

### Constitutional inferiority and abnormal make up with or without breaks.

### Idiocy and imbecility.

**RESOLUTION ON DIVISION OF FEES.**

The matter of secret division of fees between the surgeon and the practitioner referring a patient to the surgeon or specialist, has been under consideration by the Board of Councilors for some time. While this practice is not widespread nor prevalent, it appears nevertheless, if information which has come to the Board of Councilors is correct, that some members of the Association seem to be unaware that such secret division of fees is contrary to the ethics of the organization.

On that account a special committee was appointed to more fully investigate and report on this matter, and the resolutions which they submitted were adopted as the sense of the Board of Councilors, and were later unanimously adopted by the Association.

There is no objection to any division of fees for services rendered, which the patient understands, but there is decided objection to any method whereby one surgeon can make a bid for business by offering a larger "division" or "commission."

The resolutions adopted are as follows:

Whereas, It has been brought to the attention of the Board of Councilors of the Los Angeles County Medical Association that the secret division of fees between the surgeon and the general practitioner referring a patient to the surgeon, has existed and still prevails among some members of this Association; and

Whereas, Such secret division of fees tends to place a premium upon the cupidity of the surgeon rather than upon his skill, judgment and ability as an operator, and is subversive of good ethics and the highest consideration of the patient's welfare; therefore be it

Resolved, That the Board of Councilors of this Association expresses its condemnation of any division of fees between a surgeon or specialist and the general practitioner referring the patient, without the full knowledge and understanding of such division by the patient; and to this end the Councilors recommend that the general practitioner referring the patient shall have a larger recognition by the surgeon before the patient, for the services which such physician has rendered in making the diagnosis and in his attention to the patient previous to the operation, as well as at the time the operation is performed; and be it further

Resolved, That the Board of Councilors of this Association shall in future consider instances of the secret division of fees between surgeon and physician a sufficient ethical cause for the trial and expulsion of any member of this Association; and be it further

Resolved, That these resolutions be spread upon the minutes and that a copy be sent to each member of this Association, to the Secretary of each County Medical Association in California, and to the Secretary of the Medical Society of the State of California.

ANDREW STEWART LOBINGIER,

Chairman.

STANLEY P. BLACK,  
ALBERT SOILAND.

**THE LATE DR. GEORGE GOODFELLOW.**

Dr. Goodfellow died in Los Angeles on Dec. 7, 1910, after an illness of several months. His father was a physician, but practiced only for a short time, and then took up mining, spending many years of his life on the frontier and in mining regions. Thus Dr. Goodfellow received an early training in the adventurous life incident to his father's wanderings.

He graduated in medicine in 1876, and was licensed in California in 1879. For many years he practiced in Arizona at Tombstone and Tucson, during which years he was the Southern Pacific Railway surgeon in Arizona. Later he became chief surgeon of the Harriman Lines in Mexico.

At the time of the Spanish-American war, he was appointed on General Shafter's staff, and distinguished himself highly.

Dr. Goodfellow was one of the earliest men to develop abdominal surgery for gunshot wounds, and was probably the first man to perform perineal prostatectomy. Aside from his professional affiliations and friendships, he leaves a host of warm personal friends for there was about Dr. Goodfellow an intangible something that attracted people to him and held their liking and their friendship.

**NEW AND NON-OFFICIAL REMEDIES.**

Since October 1 the following articles have been accepted by the Council for New and Non-official Remedies:

Theophyllin Sodium Acetate (Merck & Co.).

Syrup Thiocol Roche (Hoffmann-La Roche Chemical Works).

Protan and Opium Tablets No. 1 (H. K. Mulford Co.).

Protan and Opium Tablets No. 2 (H. K. Mulford Co.).

**NEW MEMBERS.**

Joyce, E. F., Winters.

Ward, E. K., Arbuckle.

Holleran, J. F., Los Angeles.

Kidder, F. W. K., Los Angeles.

Stadfield, C. G., Los Angeles.

Cook, C. W., Los Angeles.

Bowman, W. B., Los Angeles.

Thomas, J. B., Santa Cruz.

Henderson, D. E., Pomona, Cal.

Mueller, A. C., Marysville.

Davy, R. B., Downieville.

Rasor, Claire, Woodland.

Scott, F., Belvedere.

Lee, Helen, San Jose.

Ryan, F. S., San Jose.

Wortmann, H., Alaska.

**RESIGNED.**

Van Allen, L. K.

**DEATHS.**

Westfall, Ashbury, Monterey.

Goodfellow, G. E., Los Angeles.

Hughes, Jerome, A., Mill Valley.

Jakes, R. W., died in San Francisco, Nov. 20, 1910

Hostetler, J. W., Napa.

Leach, Wm. H., Napa.

Rumsey, Wm. W., Napa.

Simpson, R. G., died in Modesto, Cal.

Stone, C. E., Marysville.



# California State Journal of Medicine.

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PHILIP MILLS JONES, M. D., Secretary and Editor

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## IMPORTANT NOTICE!

All Scientific Papers submitted for Publication must be Typewritten.

Notify the office promptly of any change of address, in order that mailing list and addresses in the Register may be corrected.

VOL. IX      FEBRUARY, 1911.      No. 2

## EDITORIAL NOTES.

At the time of writing, no bills harmfully modifying our medical practice act or seriously menacing public health have been introduced, though, if one may judge at all by the history of past legislatures, some bills of this class will be introduced ere long. Two bills have been introduced at the suggestion of the attorney for the Board of Medical Examiners. One of them increases the limit of fine and imprisonment for practicing without a license; the purpose of this is to permit the cases of misdemeanor under charge of violating this section of the law to be tried in a Superior Court and not in a police court. It is almost impossible to obtain a verdict, no matter how conclusive the evidence may be, for practicing without a license if the case is tried in a police court. In San Francisco, recently, a number of such cases were tried and a verdict of acquittal given when the evidence was absolutely conclusive. The other bill makes it a misdemeanor for any licensed physician to practice medicine under any name other than that in which his license is issued and requires all companies, associations, institutions, etc., to file with the Board of Examiners, and to post conspicuously in their place of business, a list of all licensed physicians who are employed by them to treat the sick or afflicted. This measure is being urged with the belief that it will make it possible to get rid of some of the abortionists who hide under assumed names and also to curtail the activities of some of the advertising "medical" companies that do such a thriving quack business. How much may be accomplished by this latter measure remains to be seen but in all probability it will

help somewhat in the work of cleaning out the quacks. Doubtless other bills having more or less bearing upon the practice of medicine will be introduced. There are three physicians in the legislature. Dr. J. L. Avey, of Redlands, is in the Senate, and in the Assembly there are Dr. E. M. Butler, of Los Angeles and Dr. D. W. Mott of Santa Paula. Mr. John F. Beckett, a brother of Dr. W. W. Beckett of Los Angeles, is also in the Assembly. The committees in the Senate and Assembly to which all bills affecting public health or medical laws will be referred, are as follows:

Senate—Public Health and Quarantine: Senators Regan (chairman), Roseberry, Stetson, Beban and Holohan.

Assembly—Medical and Dental Laws: Messrs. Hinshaw (chairman), Butler, Denegri, Malone, Rogers of Alameda, Flint, Brown, Gerdes and Bliss.

A correspondent writes to the JOURNAL in most emphatic terms deploring the election of Judge Works to the United States Senate.

**EDDYITE DOINGS.** He objects because Works is an eddy-ite, and it appears as though there were a movement on foot to place a number of eddyite followers in our legislative halls and thus influence legislation. He also objects because Works is a "reader" in a "Church of Christ Scientist"—and that use of the word "scientist," well, a red rag is more pacifying to a slightly nervous bull. But our correspondent forgets. Works is only a figment of his own imagination; to that figment there is no Senate, it is only an idea; he can not do anything about legislation, because there is no such thing as legislation, that too being a mere idea; to think it is "error." It is quite useless to get worked up over this passing delusion; you cannot fight un-reason with logic; you can neither legislate nor club common sense into anyone. These people do not know what they are saying; they cannot argue; they cannot discuss anything logically; they can only repeat, parrot-like, the meaningless words that some other person has jumbled together. Cultivate a sense of humor and let the delusion wear itself out. We can have faith without "Works."

The President, Mr. Taft, in his message to the Congress, makes the following statement in regard to public health legislation: "In my message of last year I recommended the creation of a Bureau of Health, in which should be embraced all those government agencies outside of the War and Navy departments which are now directed toward the preservation of public health or exercise functions germane to that subject. I renew this recommendation." That should silence a good deal of adverse talk; but it will not. The "League for medical freedom" will go right on stirring up all the opposition to such a bureau or department that it possibly can. It will also stir up opposition to all public health measures in the various states and do everything it can to break down just laws and regulations dealing with health conditions. Senator Owen, who introduced the bill which started all the trouble, says, speaking of this "medical freedom"

fake: "This argument is undoubtedly made by the patent medicine men who are engaged in promoting drug habits in the United States for the base purpose of making money, and dread governmental interference."

Differential pressure is still the all-absorbing problem of thoracic surgery. If this question is

#### PROGRESS IN THORACIC SURGERY.

satisfactorily solved and a small, convenient, ever-ready apparatus evolved, the technic of surgery of the thoracic cavity will make rapid strides. A year ago the JOURNAL said, editorially, that the Meltzer-Auer method was certainly the most important contribution to the subject which had appeared and recent work with this apparatus by different experimenters, both in Europe and in this country, would seem to strengthen this view. It has been claimed by many who have argued against intubating the trachea almost to its bifurcation, that injury of this structure would be almost certain to result and that infection of the lungs could easily occur. Such, however, has not happened in the few human cases which up to the present time have been operated upon by this method. The work upon animals has demonstrated clearly that these difficulties are not encountered, although tracheal infections are common in distemper, and Meltzer has lately shown that a true pneumonia may be readily caused in dogs. Quinby recently passed a tracheal tube which was known to be septic and infection of the lungs quickly followed. The air passages of the dog are more prone to infection than has generally been considered. But most observers seem to lose sight of the fact that emphysema may very easily be caused by the Meltzer-Auer method and even perforation of the lung may result in small animals from too great a pressure. It is most important that the pressure at all times be carefully observed and regulated. To the operator the fact that with this method the lungs are practically at rest is a most important feature. In Tiegel's latest work upon the bronchus he notes that heavy respiration has occurred frequently with the use of his face mask, and that this has seriously interfered with his technical work. He has been obliged to adopt the method of Volhard, which consists in a high intubation of the trachea, in order to obviate this difficulty.

The writer recently stated that the new positive pressure cabinet of Janeway and Green in which, by means of an ingenious valve, the air is raised to a pressure of plus ten and rapidly lowered to normal, thus causing the patient to breathe artificially, possessed great merit. Besides inhibiting the movements of the chest wall, thus making the operative work much easier, it does away with the carbon dioxide retention which is such a drawback to most forms of differential pressure apparatus. This statement was promptly controverted by others, and yet the most severe critic of the Meltzer-Auer method, Willy Meyer, now believes that an occasional deflation of the lungs, a change in differential in his cabinet, is necessary in order to get rid of the increased carbon dioxide and that un-

doubtedly the shock which occurs in long operations is due partly at least to this accumulation.

The Meltzer-Auer method has so broadened our horizon that it is not too much to say that a practical solution of this most important problem will soon be made.

R. R.

Why, do you suppose, any manufacturer pays this Society good money for space in your JOURNAL in order to set forth the merits of his goods? Do you think it is just a way he has of getting rid of his superfluous money, or do

#### ADVERTISING ONCE MORE.

you regard him as a peripatetic philanthropist? He is not. He has something that you may need, that it may be to your advantage to know about and that he hopes he may sell to you. It is distinctly to your advantage to read the advertising pages of your JOURNAL and to see what things are there offered to you; it is a little difficult, in this world, at least, to know too much and you might as well know all you can—especially when it does not cost you any more. Everything advertised in this JOURNAL is honest and exactly as represented. Look through the advertising pages and see what is there; do it every month. When you buy from an advertiser, let him know that you are a member of the Society and that you know he advertises in your own JOURNAL. It will not hurt you a bit; it will make him feel better and it will help your JOURNAL.

It is singular how people who wish to sell things to eat or drink seem to have the delusion that the

#### CURIOUS DELUSIONS.

particular thing they wish to sell has most wonderful therapeutic value! Food stuffs of the most simple composition become wonderful remedies in the expert hands of the advertisement writer; even water can become a cure-all. "Electric White Diamond Water" seems to be just ordinary water that has had some electricity shot through it. "Ozone is formed in the water. . . . Ozone is the greatest sterilizer known"; and therefore, of course, "electric white diamond water" becomes a wonderful remedy. "It is the only water in the world which has a decided and beneficial effect on the human system." That is certainly a modest and retiring statement, though it sounds more like the language of an "adsmith" than of a scientist. But just absorb this and then rush wildly about until you find some "e. w. d. water": "The electrical action which this water undergoes makes it radio-active, and as such it cannot fail to alleviate all stomach troubles however acute or chronic they may be." Gastro-enterostomy will soon be regarded as a tradition of the early barbaric days—the days before mankind had been blessed with "Electric White Diamond Water"—at four bits a bottle!

The vexing problem of the abuse of medical charity, or the "dispensary evil" has grown lustily for a generation. It became so bad in

New York that in 1898 the Dispensary Law was passed and all dispensaries required to be licensed by the State Board of Charities. This has only partly

#### MEDICAL CHARITY.



corrected the evil. In all large cities the problem has grown to proportions that are appalling when one comes to try and solve it. In Chicago it is estimated after some little investigation, that an equivalent of not less than three and one-half millions of dollars in gratuitous services go to those who are economically quite able to pay reasonable doctor's fees. In many instances it was found that dispensary patients were property owners and quite well to do. A committee of the Chicago Medical Society has been investigating the matter for some time past and has at last evolved a plan for careful investigation of all applicants and for co-operation among all dispensaries that, if properly supported by the medical profession of that city, should go far to curtail the evil. We shall watch the working out of this Chicago plan with much interest, for doubtless the "dispensary evil" is quite as much of a vexatious problem in San Francisco and Los Angeles, relatively, as it is in Chicago. In his annual report, last April, the Chairman of the Council of the State Society, Dr. C. G. Kenyon, gave it as his opinion that no person, rich or poor, need pay for medical or surgical treatment in San Francisco, unless he wanted to do so.

*Collier's Weekly* was one of the first publications in this country to assume a reasonable responsibility for the advertisements which it publishes. In 1905 it threw out the advertisements of C. W. Post who was exploiting his 50,000 DOLLARS. "postum cereal" and "grape nuts" in a way to deceive the public into the belief that these very ordinary food-stuffs possessed medicinal properties. One advertisement read "No appendicitis for those who use grape-nuts." Later, *Collier's* exposed this postum fraud in no unmeasured words and in retaliation the postum folks published an advertisement in 44 papers in New York State in which, referring to *Collier's*, they said "When a journal wilfully prostitutes its columns to try and harm a reputable manufacturer . . ." Collier brought suit and on December 3rd, 1910, was given a verdict of \$50,000 for this libel. Good work. There is another suit pending and we hope that Collier may get another fifty-thousand dollar verdict. The amount of harm that people like Post do, is incalculable; it is fraud of the very worst kind and has been only partially stopped by the Food and Drugs Act. In its issue for December 24th, *Collier's* has a very interesting account of the whole episode which closes with the plain but very clear and intelligible statement: "C. W. Post is a faker. There's a verdict."

Some of the magazines seem to have gone far afield looking for things to become hysterically indignant about; one would almost be inclined to think that not enough muck existed for all the rakes and all the rakers. One periodical has published some articles on the subject of our soldiers and what a terrible life they are forced to live! It is almost enough to make tears come to the eyes of a down-East melodramatic step-mother to read that the poor, darling soldier-boys

actually have to work in stables and in kitchens and places like that! It is simply awful to contemplate the anguish which a cavalry soldier must suffer when he has to clean out his horse's stall and curry him; such menial tasks to impose upon a free-born American citizen who has enlisted to fight for his country-e-e-e. Oh! Sis!

### MARVELOUS BACTERIOLOGY.

During the past few years attempts have been made to bring about a closer relationship between the medical and pharmaceutical professions, with a fair measure of success, and it is not at all uncommon to see pharmacists and expert chemists contributing to our various medical journals. The dental profession has likewise, occasionally furnished articles on the care of the mouth, or on oral surgery. It is unfortunate that the dental and medical professions do not come into closer scientific contact. They could work out many problems together, and it is certain that both would greatly benefit by such collaboration. In spite of the fact that dental students are given a course in bacteriology, it is amazing how little knowledge of the subject the average dentist possesses. It is still more terrible to think that a person absolutely untrained in such a subject, should be allowed to pose as a bacteriological wonder before his fellow-men. It would be far wiser to invite a few physicians to attend dental gatherings when border-line subjects are up for discussion. If this were done, statements, such as were made in the leading article of the January number of the *Pacific Dental Gazette*, would not be published, and those who attended the June meeting of the Southern California Dental Association would not have been so "bluffed" as their discussion proves they were. The following are but a few of the wonderful assertions to be extracted from "Some Thought on the Etiology of Pyorrhea Alveolaris" and its discussion:

"I might say that my observations have led me to wonder if the presence of tuberculous matter in the blood might not be accounted for in the following way: We know that nearly, if not every one, has nowadays more or less syphilitic spores in the blood. Now we know that everything that has form has a beginning, growth and an end, and may it not be possible that these spores also have a period of activity and then change into inactive nodules? The geometrically arranged nodules in tuberculous matter appears to be of the same general size and appearance as the spores, and are, to all appearances inactive. I do not attempt to state that such is the case, but I do state that I have always found these spores in the same blood where I have found tuberculous matter.

Also I find within the active leucocytes not only the spores but what appears very much like tuberculous nodules. Using this theory as an hypothesis to base our observations on, and knowing that where the vitality is low from autotoxemia, that the leucocytes are in a degree inactive, something must happen on account of the multiplication of the spores. If the spores do become inactive after their cycle of activity has closed, what becomes of them? Has anyone as yet discovered an answer to this question? May it not be possible that they do become tuberculous matter? And by its accumulation in the blood may find lodgment in the finer blood vessels or lymphatic ganglions? May not this condition in time produce tuberculosis? I have found it often in the blood of pyorrhea patients; I find also that such patients are people who worry a great deal, and have the emotions very much accentuated. I find that by keeping the bowels moving twice daily for some time, thus clearing the blood-stream of toxins, that the leucocytes become active, that both the spores and tuberculosis matter, in degree, disappear. So I take it from the above basis that, if people let their minds run riot with their feelings, they will cause thereby constipation, autotoxemia, inhibition of the function of the leucocytes. This will allow the tuberculous matter to increase, and such people must, sooner or later, suffer for their own carelessness of mental action."

"The dentist who will provide himself with a first-class, high-power microscope, and learn how to use it in fresh blood analysis, in order to obtain the opsonic index of the blood will marvel that he did not do it sooner."

"The microscope also shows the stage anemia: the vital energy is shown by the shape and quality of red cells, whether they have energy enough to stand out singly and move about freely in the currents of the plasma, or whether they are deficient in quantity, and lean against each other for support in bunches of rows, like rows of coin, having little or no motion."

" . . . in the case of syphilitic spores, these can be seen within the leucocytes rushing from side to side vainly trying to find a way out. . . ."

"I will be very brief, Mr. President. I want to congratulate this society on having a man with such marked ability. I have enjoyed this paper as nothing I have heard in years, and I hope we can have this published, if possible, in pamphlet form, so we can put it in our pockets and carry it back and forth on the cars, in order that we may become thoroughly familiar with it. I should like to read it five or six times, and then I would begin to think about it."

"While sitting back here, I thought of this paper as one that should be read before the National Dental Association. We are to be congratulated upon having such a man as Dr. A. in our association."

R. B.

## ORIGINAL ARTICLES

### HYPERCHLORHYDRIA.\*

By WILLIAM FITCH CHENEY, M. D., San Francisco.

This paper is based upon the observation of 318 cases in which hyperchlorhydria existed, as proved by stomach analysis. These were seen partly in the dispensary service at Cooper Medical College, between January 1, 1900, and January 1, 1909; and partly in private practice, between April 18, 1906, and January 1, 1910. The records of all these cases have been reviewed in the preparation of this paper.

*Definition.* By hyperchlorhydria is meant that condition in which the stomach contents show an abnormally high percentage of hydrochloric acid. But it has been proved by the experiments of Bickel<sup>1</sup> that with the hyperacidity there occurs also a hypersecretion—that the change in the juice is one not only of quality but also of quantity. Ordinarily this hypersecretion takes place only so long as food is present in the stomach and ceases as the stomach is emptied. It is only in certain rare cases originally described by Reichman, that continuous hypersecretion occurs, which goes on even during the intervals of digestion in the fasting stomach. With such cases the term hyperchlorhydria as commonly used has nothing to do. Furthermore, there is no object in attempting to distinguish between hypersecretion and hyperacidity in ordinary cases, and in this paper the two are understood to co-exist when hyperchlorhydria is mentioned.<sup>2</sup>

*Recognition.* The evidences of hyperchlorhydria are both subjective and objective. The *subjective* signs are quite characteristic. The patient has an excellent appetite or even an abnormal craving for food. The taking of a meal satisfies this and gives comfort for a time, but at a varying interval afterwards, averaging about two hours, distress begins. This distress is usually described as a burning feeling over the stomach or higher up in the chest, popularly known as "heart burn." There is no actual pain in simple hyperchlorhydria, though the stomach region usually feels tender and sore, and pressure even of the clothing may be uncomfortable. Accompanying this burning distress there is belching of gas; eructations occur of mouthfuls of sour fluid—the symptoms known as "water-brash"; nausea is frequent and at the height of the distress vomiting not uncommonly takes place, the vomitus being very sour, acrid and irritating. This vomiting relieves the situation until food is taken again. If vomiting does not occur, the suffering usually persists until the next meal, which removes the symptoms temporarily; but after an hour or two they all recur, and so the cycle goes on. With the constant repetition of these discomforts the patient naturally grows very irritable, peevish and disagreeable in temper. The bowels are usually obstinately constipated. There is no loss of weight of any consequence, unless the patient abstains from food be-

\* Read at the Fortieth Annual Meeting of the State Society, Sacramento, April, 1910.

<sup>1</sup> Deutsche Med. Wochenschrift, Nov. 30, 1907, S. 1201.

<sup>2</sup> In a recent monograph on "Dyspepsia" by Fenwick, he expresses the view that hyperchlorhydria at first occurs without hypersecretion; but if long continued, hypersecretion results, at first only at the time of digestion, ultimately even during the intervals of digestion.



cause of the fear of suffering after eating, or unless he habitually induces vomiting to relieve his distress.

The *objective* signs on physical examination are tenderness over the epigastrium, but general rather than localized; a succussion splash quite constantly even for four or five hours after food has been taken; but no tender spot, no palpable tumor and no peristaltic wave over the stomach area. The only positive proof of the condition, however, is that obtained by the test meal. One hour after the Ewald meal is taken, the material removed is usually abundant, it often comes out through the tube with a violent gush and it contains a larger proportion of fluid than of solids, making an excess of liquid in the receiving vessel, with well-triturated toast settling to the bottom. This is the characteristic finding in hyperchlorhydria and by it one learns to feel reasonably certain of the diagnosis even before the analysis is made. The total acidity is high. Taking the normal limits of total acidity as 40 to 60, we find values in hyperchlorhydria anywhere from 60 to 100 or even above. But it is not the total acidity alone that is diagnostic; one must know also the amount of free HCl, of combined HCl and of the organic acids and acid salts. Usually we find large amounts of free HCl present, making up the greatest part of the total acidity. But in some cases the free acid may be quite moderate, while the combined acid has the higher figure. What really settles the diagnosis and should always be looked upon as conclusive is the sum of the free and combined acid values, no matter which one of the two happens to be greater. If on the other hand it is found that with a high total acidity the greatest part of this is taken up by the organic acids and acid salts, the case is obviously not one of hyperchlorhydria.

*Significance.* The meaning of hyperchlorhydria is always the problem of most importance. It should be looked upon only as a symptom, and we have in every case to ask ourselves what condition underlies it. The possible conditions are not many, but to recognize the one operating in a given case is often extremely difficult.

(1) In many instances hyperchlorhydria is rightly classed as a *neurosis*; that is, there is no organic lesion found associated with it and the only explanation for it is in a disordered nervous system. Many facts speak for this as a common etiology. It occurs frequently in those who present other evidences of neurasthenia or hysteria. It is always worse after fits of emotion such as anger, or after periods of worry and anxiety or overwork. It is also suggestive that the degree of suffering is not always coincident with the degree of hyperacidity, for some patients with moderately high acidity complain constantly, while others with excessive amounts of free HCl on analysis may feel fairly well—showing that hyperesthesia or disordered sensation plays an important part in the production of symptoms. Even after a case is cured clinically and no further complaint is made, analysis may continue to show hyperacidity; but the element of hyperesthesia has been removed and so the hyperacidity is no longer perceived. Finally, a large proportion of the cases of hyperchlorhydria, diagnosed as nervous in origin because no other cause can be found, do undoubt-

edly recover promptly on treatment directed to the nervous system as well as to the stomach. Yet no greater error can be made in diagnosis than to assume too readily that hyperchlorhydria is merely a neurosis and that no organic disease exists. We are learning more and more to distrust all so-called gastric neuroses and to search each case carefully for some organic lesion, either in the stomach itself or possibly in some distant organ.

(2) The first organic lesion suspected when hyperchlorhydria is found is *gastric ulcer*. It is true that ulcer is almost inevitably accompanied by hyperchlorhydria; but there must be still other evidence to prove the existence of this most serious disease. The data upon which we depend for the conclusion that ulcer is present, are partly subjective and partly objective. In the history there is more definite localization of pain; the pain is more intense; it is frequently felt in the back as well as in the epigastrium; it is more likely to disturb sleep than is the burning distress of hyperchlorhydria; while a bloody vomitus is never present in simple hyperchlorhydria and does occasionally occur in ulcer—but should not be awaited before a diagnosis is reached. The objective evidence pointing to ulcer is not only the hyperchlorhydria found after a test meal, but the tender spots on pressure over the epigastrium; usually to the right of the median line, and over the back close to the 10th, 11th or 12th dorsal spine, usually to the left side of the vertebræ; the discovery of occult blood in the stomach contents or particularly in the feces; the finding of food retention in the stomach and of a left to right peristaltic wave, indicating obstruction at the pylorus, no matter whether this obstruction be due to actual mechanical or to simple spasmodic closure of its lumen. If the data are all positive, it is easy to conclude that the hyperchlorhydria is only one symptom of ulcer; but if the data are incomplete, it is often impossible to decide that the case is anything more than one of hyperchlorhydria. In such a case time, further observation and the effects of therapy help to settle the doubt. Regarding the value of orthoform in allaying the pain of ulcer, and thus as a diagnostic test, I have never had any results that justified confidence in it.

(3) Hyperchlorhydria is also found associated quite constantly with *duodenal ulcer*. In fact, there is practically no difference between this and gastric ulcer except the slight one of situation with reference to the pyloric orifice.<sup>3</sup> The symptoms are much the same in both; but the points indicating that the ulcer lies on the duodenal side of the pylorus are the later occurrence of pain after food has been taken, the "hunger pain" especially at night when the stomach is empty, the lower situation of the tender spot in the epigastrium or right hypochondrium, and the fact that when hemorrhage occurs the blood is not vomited but passed by the bowel. Among objective signs, there is nothing about the degree of hyperchlorhydria to aid in determining the site of the ulcer; food retention in the stomach is as likely to occur whether the obstruction and spasm be just above the pylorus or just below it; but oc-

<sup>3</sup> The writer's views on this point have changed decidedly during the months that have elapsed since this was written; and he now feels, at the time of publication, that this statement is not altogether correct.

cult blood in the feces without occult blood in the stomach contents is of some value in locating the ulcer below the pyloric orifice. The Einhorn duodenal bucket promises to be of aid in locating the site of the ulcer, but has so far not been tried in enough cases to make us sure of its value. In general it is much more easy to say that a hyperchlorhydria means ulcer in a given case, than it is to say which side of the pyloric ring the ulcer lies.

(4) One of the most important additions to our knowledge during the past decade has been the discovery that hyperchlorhydria may be associated with *gastric cancer*. This is true quite regularly when the cancer has developed on an ulcer base; and the frequency with which malignancy may follow chronic ulcer is becoming constantly better realized.\* For years attention has been persistently called to the absence of hydrochloric acid from stomach contents in gastric cancer and this absence has been generally accepted as one of the vital points in the diagnosis. Now, however, we are learning that not only normal but even excessive amounts of acid may be found with cancer of the stomach, provided the cancer is a sequel to ulcer of the stomach. In a given case, therefore, hyperchlorhydria does not negative a possible diagnosis of cancer. In such a case after months of a history characteristic of gastric cancer, there develop the loss of appetite, the coffee ground vomitus, the more constant diffuse pain, the rapid loss in weight, the cachexia and ultimately the palpable tumor mass characteristic of cancer. A valuable aid in diagnosis is that announced a few years ago by Schmidt, on examination of the stools. In either ulcer or cancer, occult blood may be found in the feces; but in cancer there may also be found in the feces numerous Oppler-Boas bacilli, Gram positive, while in ulcer these do not occur. This test has been proven of value in numerous cases by different observers, and helps to throw important light upon doubtful diagnosis between these two lesions.

(5) It must always be borne in mind that hyperchlorhydria may be associated with disease elsewhere in the digestive tract than in the stomach. The other organs particularly to be remembered for investigation are the gall-bladder and the appendix. In these conditions the gastric hypersecretion is only a nervous reflex. The difficulty is that to it all the symptoms are likely to be referred and the real trouble behind it is overlooked. In *gall-bladder disease* the symptoms may be almost entirely gastric for months—distress after food, eructations of gas, water-brash, nausea and occasional vomiting, and soreness and tenderness over the epigastrium or right hypochondrium; and when in addition hyperchlorhydria is found, the problem is considered solved. The data that point to the existence of disease outside the stomach are the occasionally recurring attacks of pain, more or less severe, in the gall-bladder region, regardless of diet and even while careful diet for hyperchlorhydria is being given; the slight elevation of temperature occurring with these attacks; the tenderness and rigidity found at the time at the lower border of the liver in the gall-

bladder area, and possibly a palpable mass there. There is no intention to convey the idea that gall-bladder disease is always accompanied by hyperchlorhydria; for on the contrary a normal acidity or subacidity is frequently found. But what is intended is to call attention to the fact that hyperchlorhydria, when it is found, may be simply the consequence of disease entirely outside the stomach, in the gall-bladder or elsewhere.

(6) As regards *the appendix*, chronic inflammation of this organ is a frequent source of dyspepsia of the acid type and after a test meal hyperchlorhydria is often found. It may be impossible in these cases of appendix dyspepsia to elicit any history of a previous acute attack of appendicitis; but there is usually definite evidence of trouble in the appendix region such as a palpable mass there with exquisite tenderness on deep pressure; and occasional attacks of pain and soreness, without fever or very severe suffering. Here again the hyperchlorhydria is only a symptom and not a constant symptom. Often with all the symptoms pointing to the stomach as the seat of disease, and with all of them such as are found with excessive acidity, the test meal shows hyperchlorhydria; and the cause of the gastric condition may not be suspected, until careful search reveals the appendix condition. Even then the relation of one to the other may not be considered proven until after ordinary treatment directed to the stomach has done no good. On the other hand, however, it must be remembered that the stomach may show normal acidity or even subacidity in chronic appendicitis and that appendix dyspepsia is not always of the acid type.

(7) Another symptom complex in which hyperchlorhydria is quite regularly found, is that associated with *movable kidney*. The combination of the symptoms of acid dyspepsia, chronic constipation, and general neurasthenia, is a frequent one with the objective findings not only those of hyperchlorhydria after a test meal, but also of a prolapsed right kidney. Frequently in these cases the stomach is also found prolapsed. It is often difficult to decide here just what should be the point of attack; but it is obvious after experience, if not before, that mere treatment of the gastric hypersecretion will not clear up the situation, and that the kidney prolapse must be dealt with by some method or other before success is achieved.

(8) Finally, hyperchlorhydria may mean chronic narrowing at the pylorus, with partial food retention and the irritation of the gastric mucous membrane that habitually results. Such chronic narrowing may be the consequence of the scar of a healed ulcer; or of adhesions from old gall-bladder inflammation; or of kinking from prolapse of the stomach. Evidences of this obstruction are the peristaltic wave to be elicited over the stomach; the delayed emptying of the organ and food stagnation proven to exist by the stomach tube; and the dilatation found by inflation. The previous history of the case must be relied upon to furnish the proof of former ulcer or cholecystitis; while inflation will demonstrate the existence of gastropnoia. The hyperacidity in these cases is again only a symptom, due directly to chronic irritation of the gastric

\* Wilson & MacCarty: Am. Jour. Med. Sci., Dec., 1909, p. 846.



glands by too long retention of contents in the stomach; and indirectly to pyloric narrowing as a sequel of former organic disease.

*Treatment.* Granted that the hyperchlorhydria has been diagnosed as a gastric neurosis, associated with no organic lesion, much can be done to relieve it by medical means; and in any doubtful case, such treatment proves a diagnostic aid, by its success or failure. Of the first importance is *diet*; and after trials of various forms of foodstuffs, the proteids have been found to agree best, regardless of theoretical considerations to the contrary. The diet should therefore include milk, eggs and scraped meat, with thoroughly baked and partially dextrinized wheat bread. A list often prescribed at the outset is the following: 7 a. m., two soft-boiled or poached eggs; thoroughly toasted bread, or zwieback or toasted soda crackers, with butter; eight ounces of milk. 10 a. m., eight ounces of milk (with toast and butter if desired). 1 p. m., beef, mutton or chicken, picked into shreds while raw or chopped fine, then made into a meat ball and cooked rare; toast, zwieback or crackers with butter. 4 p. m., eight ounces of milk (with toast and butter if desired). 7 p. m., a bowlful of well cooked rice, with butter or cream; or shredded wheat biscuit with butter or cream; or toast or zwieback for variety; six ounces of milk to drink.

The fats are likewise of importance, because they not only are necessary to nutrition but because they decrease the acid secretion. Cream with the milk and butter on the zwieback or toast are therefore early additions to the dietary. Gradually other additions are made as the case improves, until at the end of a few weeks quite a liberal variety can be allowed; but always cautioning against all coarse and irritating foods. A diet list is furnished of articles permitted and denied, and the patient is advised to follow this carefully for weeks or months according to the progress of the case. Such a list usually allows eggs, tender meats, fish of any kind, milk, soups, thoroughly cooked cereals, crackers and zwieback; but excludes vegetables, fresh fruits and all acid and highly seasoned foods.

Next of importance in treatment come drugs. These aid by neutralizing the hyperacidity or by checking the secretion. For neutralizing the hyperacidity, a useful combination is one of soda bicarbonate and magnesia usta, to which powdered rhubarb is added if constipation exists; such a powder to be given an hour or two after meals, when gastric distress begins. Another useful powder is a combination of cerium exalate, bismuth subcarbonate and light carbonate of magnesia, given in the same way after food. Usually such powders can be gradually discontinued as the diet is made to combine with the excess of acid. In case of excessive nervous irritability sodium bromide can be added to either of the powders mentioned.

Of drugs that check secretion, the most valuable are belladonna, silver nitrate and olive oil. A pill of extract of belladonna and silver nitrate given before meals; or a half ounce or ounce of olive oil given in the same way are often very great aids in preventing distress. The former plan, alkalies after meals, is the one usually tried first. If symp-

toms do not disappear after a reasonable time, the second plan is then adopted, either alone or coincidentally.

In some cases with other outspoken evidences of neurosis besides the gastric condition, no results are obtained until the patient is taken from his usual activities, put to bed, isolated and given the usual regime known as the rest cure. In other cases it suffices to send such patients away from their usual business cares and family worries on a vacation, with the diet and prescriptions just described. By these various devices the patient with hyperchlorhydria can usually be made comfortable quickly and ultimately cured completely, so that he is at liberty to eat and live without such great restrictions; though the ailment is always likely to recur with indiscretions in diet or long-continued mental effort or worry or emotion.

If the case does not improve on any of the plans suggested, it can be assumed as reasonably certain that some cause exists not previously recognized. The first thought should be of an ulcer, for which further search should be made. Whether ulcer is positively discovered or seems only very probable, a systematic ulcer cure should next be instituted. There is a medical cure for gastric ulcer in its early stages; but for chronic ulcer, of several years' standing, where extensive organic changes have taken place, no permanent cure can be expected except from surgery. The danger that cancer may develop upon an open ulcer or upon the unhealthy cicatrix of a healed ulcer is still another argument for surgery in the chronic cases with persistent hyperchlorhydria. For hyperchlorhydria associated with movable kidney, much can sometimes be done by a properly fitting corset to support the kidney, in connection with diet and alkalies. For chronic appendicitis and chronic gall-bladder cases, no cure for the hyperchlorhydria exists except removal of the underlying cause; and the same is true for pyloric stenosis from whatever source it has arisen.

## THE VALUE OF RECTAL EXAMINATIONS.\*

By ALFRED J. ZOBEL, M. D., San Francisco.

A very brief description of the anatomical relations of the rectum and sigmoid colon will suffice to illustrate how functional or organic disturbance in neighboring parts might cause symptoms to arise in these portions of the large bowel, and vice versa; and at the same time demonstrate the necessity for, and the value of, rectal examinations.

The lower portion of the rectum is in relation anteriorly with the prostate gland and membranous urethra in men, and with the vagina in women. The upper portion is in relation anteriorly with the bladder and superior part of the prostate gland and the seminal vesicles in the male, and the vagina and the pouch of Douglas in the female. The latter contains the sigmoid flexure, loops of small in-

\* Read at the Fortieth Annual Meeting of the State Society, Sacramento, April, 1910.

testine and various pelvic organs. The anterior wall of the rectum is thus in close contact with these parts.

When the sigmoid colon is empty it lies in the recto-vesical space, and so is in direct relation anteriorly with the bladder in men, and with the uterus, ovaries and fimbriated extremities of the tubes in women. When normally distended by gas and fecal matter, and not prevented from ascending by adhesions or weight of growths, heavy fecal masses, etc., it rises into the abdominal cavity, and is there surrounded by loops of small intestines, and by the abdominal wall.

The centers of the nerve supply of the anus and rectum are practically the same as those of the genito-urinary apparatus.

Patients with anal or rectal symptoms generally complain of "piles." They offer this self-made diagnosis no matter what the real trouble may be, and he who with calm indifference accepts their diagnosis without a digital or ocular examination is very apt to make most humiliating errors. In proof of this I will say that twice within the year I have found far advanced and inoperable cases of rectal carcinoma in men who had been told that their symptoms arose merely from internal hemorrhoids. Several individuals with primary gonorrhea of the rectum coming under my observation had previously received from symptoms alone a diagnosis of "itching piles." Recently, a youth of 19 years appeared at my clinic complaining of "piles." An examination showed his anus surrounded by the well-marked condylomatous lesions of secondary syphilis; his inguinal glands most markedly enlarged, and his body covered with syphilides. Yet the unfortunate boy was totally unaware of his true condition and came seeking relief for "piles" only. In such a case as this very grave consequences to others as well as himself might have ensued if a rectal examination had been neglected.

In my experience uncomplicated hemorrhoids give rise to but few of those symptoms for which relief is commonly sought. There is generally present some lesion in or about the anal canal, such as a fissure, ulceration, beginning abscess, hypertrophied papilla, inflamed Crypt of Morgagni, fistula or an inflammatory condition of the mucous membrane. Symptoms of pain, bleeding, or itching at the anus are attributed solely to hemorrhoidal disease by the laity, yet on examination we may find the pain due to an irritable fissure or ulcer, beginning abscess, cancerous growth, or to an unsuspected fistula; the bleeding arising from like lesions; and the itching due to fissures or to the parts being kept moist by irritating secretions from pathological conditions

above, or caused by the anal lesions described by Wallis and by Chittenden Hill.

In the presence of a pruritus ani a proctoscopic examination is of the greatest importance in order to arrive at a correct etiological diagnosis. Yet how seldom is this done even by the dermatologist, who is often satisfied by a mere inspection of the peri-anal skin. Wallis and Hill both claim that shallow ulcerations in the proctodeum are the main causative factors of a pruritus ani, and that the secretion from these lesions, or from those of the mucous membrane higher up may cause the irritated and fissured condition of the itching peri-anal skin. While pruritus ani may be due to external causes, such as a dermatitis, eczema, herpes, pediculi, parasites, etc., or to constitutional or reflex causes, yet it should be kept in mind that it may be a symptom of fissure of the anus, hemorrhoids, copremia, rectal growths, disease of the crypts of Morgagni, catarrhal diseases of specific or non-specific types, fistulae, etc., and these are disclosed only by a proper examination and the tormenting symptom relieved only when the cause is removed.

Where there is pain or even only discomfort about the anus we may find an external thrombotic hemorrhoid which can be painlessly evacuated of its clot before possible complications arise; or a marginal, ischio-rectal, or perineal abscess which can be opened externally before it ruptures into the bowel and leaves a fistula. Where pain immediately precedes a movement of the bowels, a deep seated ulcerative process, such as carcinoma of the rectum, should be suspected. Rectal cancer in its early stages gives rise to practically no pain. Very often the patient, and even his medical attendant, attributes the slight bleeding, tenesmus and distress to "piles." Owing to failure to make a proper examination it is not until the classical symptoms of well developed and usually incurable disease are present that cancer of the rectum reaches the hands of the surgeon. In every individual with rectal symptoms an examination should be made for the possible presence of a malignant rectal growth, especially so when there has been a history of persistent constipation or diarrhea, or a combination of both.

It seems almost needless to suggest a proctoscopic examination where there is a history of bleeding from the anus, yet too often is this neglected, and an astringent ointment or suppository prescribed for what is thought to be only bleeding from internal hemorrhoids. The medical attendant is apparently unconscious that hemorrhage could also be a symptom of fissure; fistula; ulcer of a simple, tubercular, specific or malignant type; cancer; severe forms of prolapse; proctitis; protruding polypi; villous growths; stricture complicated by ulceration;



chancroids; chancres, condylomata, traumatism from foreign bodies, or fecal impaction. The passage of blood, not accompanied by pain or other symptoms may be a danger signal in commencing malignant disease.

As pointed out by Wallis, many cases of profound anemia may be due to hemorrhage from hemorrhoids. This is frequently ascertained only after treatment for the anemic condition has failed, and as a last thought an examination of the rectum has finally been made. When rectal hemorrhage comes from capillary hemorrhoids high in the rectum it is important to exclude the presence of an ulcer further up. According to Goldman, high hemorrhoids 10 to 18 c. m. above the anus may be the cause of occult hemorrhage.

The passage of ribbon-shaped stools may incline one to suspect a malignant growth or stricture, but a digital exploration may show the cause in a spasmodic condition of the rectum and anus, which may be part of a neurasthenic or hysterical neurosis, or a symptom of inflamed hemorrhoids or anal fissure.

In the aged where there is abdominal pain, a rectal examination always should be made, for, as pointed out by Deaver, it is frequently caused by cancer of the rectum.

A tumor in the left iliac region which is sensitive to pressure with stools containing much mucus, on sigmoidoscopic examination may be shown to be only a spastic contracture of the sigmoid which is not uncommon in well marked cases of gastropsis.

All diarrheal conditions call for a prompt and thorough proctoscopic examination. When there is an obstinate diarrhea, especially in an elderly person who had previously regular stools, and it is accompanied by pain and tenesmus, there is a possibility of the presence of cancer. As these individuals frequently attribute the onset of the diarrhea to some error in diet, or to exposure to cold, serious consequences may occur if an examination be neglected.

All sufferers from mucous colitis should be subjected to high rectoscopic examination. Recently Kaabak and Rosenchein have demonstrated that mucus is produced in excessive quantities only at that point where there is local irritation. This point of local irritation may possibly be found and thus permit of effectual therapeutic measures. Lockhart Mummery states that instrumental examination is especially valuable in distinguishing secondary from primary forms of mucous colitis. The cause of the colitis may be found due to adhesions binding down or constricting the sigmoid colon. Such a case was demonstrated by me before the San Francisco Polyclinic Society. The diagnosis of adhesions binding down the gut at the recto-sigmoidal junction was afterwards confirmed at operation. Inflammatory lesions in the mucous membrane of the sigmoid of a simple, granular, hypertrophic, follicular or ulcerative type, or a neoplasm, may be found to be the causative factor of the colitis.

When symptoms of indigestion are present it is well to remember that they may be caused reflexly by ulceration, stricture or carcinoma of the rectum. Flatulence may arise from a fissure of the anus with resulting constipation. Tympanites is present in stricture and malignancy.

Where there is obstruction of the bowels, either partial or complete, rectal exploration is of prime importance. The cause perhaps may be found in a stricture, carcinomatous or benign neoplasm; fecal impaction enteroliths, foreign body, some malformation, hypertrophy and thickening of the valves of Houston, an enlarged prostate, misplaced uterus, or from a narrowing of the rectal lumen due to a tumor or inflammatory exudate pressing from without.

One of the symptoms for which patients seek relief most frequently is constipation. Much can be learned in these cases from a proper examination with finger and proctoscope. Digital examination may disclose a very rigid and hypertrophied anal sphincter, perhaps caused by an irritable fissure, an inflamed pocket at the valves of Morgagni, or an ulcerated thrombotic hemorrhoid. A little higher up perhaps there may be felt a foreign body, a growth of benign or malignant nature, or a stricture. (This last probability is alone sufficient reason why an instrument should never be introduced into the rectum before a digital examination is made.) Or the finger may find a deviated coccyx pushed into the lumen of the rectum, obstructing the passage and giving rise to pain; or an entire absence of that bone, thus forming a well marked retro-rectal pouch in which fecal matter accumulates. The proctoscope may show an atrophic or hypertrophic proctitis, either the cause of or most probably the result of the constipation. The valve of O'Bierne at the recto-sigmoidal junction is the narrowest point of the large bowel, and we often see here such a spasmodic condition of the gut that we can well account for the patient's constipated state. When the rectum is distended with air the valves of Houston come well into view. They may be hypertrophied or so placed that being directly opposite each other they retard the passage of the fecal mass.

Tuttle has found that in 40% of his cases of rectal cancer there was a history of constipation, and suggests that a periodical examination of the rectum be made in all cases of persistent constipation (just as the urine is examined in nephritis), as cancer may be lurking. Our suspicions of cancer should be aroused; and examination promptly made, when there is frequent desire to stool; call immediately to stool on arising; change from diarrhea to constipation and vice versa; loss of weight, flatulence and indigestion associated with stool irregularity.

An examination of the anus and rectum of infants and children is often of great value from a diagnostic standpoint. In children subject to obstinate constipation the cause may be a prolapse of the anus, a congenital stricture or a fissure of the anus. Blood in the stools of children may be due to hemorrhoids. These are not often seen but may occur in children as young as three or four years. The bleeding, if accompanied by pain, may be due

to an ulcer of the rectum which may be of a tubercular type.

In prolapse of the rectum in children a local cause may be revealed as worms, polypi, inflammation of the prostate, or even a slight degree of congenital stricture of the rectum. The presence of a prolapsus ani which has been found to be caused by straining at urination may lead to a correct diagnosis of stone in the bladder, stricture of the urethra, or phimosis.

When there is a vulvovaginitis, of gonorrheal nature, the possibility of secondary infection of the anus and rectum should never be overlooked, for, according to Flugel about 20% of all children so affected had involvement of the rectal mucosa.

When a child is peevish, and is seen to rub the anal region saying "It hurts," a close examination of the anal mucosa may disclose superficial lesions that give rise to itching sensations. The child being unable to interpret this sensation as "itching," complains of it as "pain." I have not seen this observation mentioned heretofore, and believe that a mild type of pruritis ani is more frequent in children than commonly suspected, and that it accounts for much of that peevishness in these little ones for which no cause can be assigned.

A patulous anus, with the presence high up of a mass having the characteristic feeling of a nulliparous os uteri, will confirm a diagnosis of intussusception of the bowel, and is a very early sign of that condition.

In diseases of the nervous system an examination of the anus and rectum will often be found of much value. A paralyzed external sphincter muscle may be one of the earliest symptoms of tabes. A weakness of this muscle should arouse a suspicion of a generalized polyneuritis. Singer has called attention to the fact that sometimes disease of the lower bowel assumes the form of a distinctly nervous affection, and the local symptoms may be so slight as to give no hint of the true nature of the case. When complaint is made of severe pain about the ano-rectal region it is very important to exclude all other causes for the pain before attributing it to neuralgia. The anal crisis of tabetics may simulate a rectal neuralgia, the pains in the anus radiating to the rectum, perineum and buttocks.

The cause of a sciatica may be a loaded rectum, rectal stricture, hemorrhoids, or pressure upon the nerve roots by a benign or malignant rectal growth. In a man who had persistent sciatic pain for months, a rectal examination showed a growth resting on the sacral roots. There was a luetic history, and under large doses of the iodides the tumor and pain rapidly disappeared.

In a patient referred to me for examination by Dr. Leo Newmark there were marked nervous symptoms of a profoundly neurasthenic type. He gave a history of having had worms for twenty-five years. This was taken "cum grano salis," but the man's statement was corroborated when a high proctoscopic examination showed at the recto-sigmoidal junction a mass of fecal matter swarming with the oxyuris vermicularis.

Headaches and neuralgias may be due to the stagnation of fecal masses. When there is a tendency to melancholia or mental depression an examina-

tion may disclose a coprostasis or perhaps a mucous colitis.

Neuralgia shooting down the leg or even over the body may be due to an irritated fissure of the anus. Tuttle states that facial and occipital neuralgia, spinal irritation and temporary strabismus have been known to disappear almost immediately after operations for fissure.

In the practice of gynecology rectal examinations are of especial importance. Owing to the close anatomical relationship existing between the female genital organs and the rectum and sigmoid, as stated before disease or disordered function in the one is apt to set up a like condition in the other.

Women who are constipated often suffer from an unrecognized chronic sigmoiditis and have more or less of a leucorrheal discharge of an intermittent type. According to Stern, this leucorrhea is, for the most part, due to the mechanical interference of the diseased sigmoid with the uterus or adjacent generative organs. In young girls who suffer from leucorrhea and who are generally of the anemic type, an examination of the lower bowel often shows it filled with feces even though they state that a full movement of the bowel occurred an hour or so previously.

Albrecht states that when there is an inflammatory process in the sigmoid a clinical picture results which may simulate a pelvic peritonitis, and that a sigmoidoscopic examination should always be made and the possibility of a sigmoiditis thought of when examining a case of inflammatory tumor formation in the vicinity of the uterus when accompanied by obstipation and signs of stenosis. This is especially necessary in elderly women as they are particularly subject to stenosis of the sigmoid flexure from an indurative inflammation originating in a false diverticulum.

Pennington has emphatically called attention to the fact that the bowel factor is often overlooked in cases of seemingly utero-ovarian disease, and has deplored that physicians so rarely examine the rectum and sigmoid where symptoms apparently point to the genital organs only. In many instances the lower bowel will be found loaded with feces, and it is marvelous how the uterine symptoms sometimes disappear when relief is given to the bowel condition.

Howard Kelly states that a well loaded upper rectum sometimes crowds out behind the broad ligament, and without careful rectal examination an erroneous diagnosis of ovarian or tubular tumor is liable to be made.

Neurasthenics are common subjects of constipation with its resulting proctitis, and a rectal examination often clears up the cause of their pelvic disorder and allows of correct treatment.

Many persistent irritations and inflammations of the left ovary are caused by irritation from a chronic rectal condition. Whenever defecation in a woman is the source of pain and even agony, a rectal examination may show it to be due to a prolapsed ovary.

The quantity, frequency and course of the menstrual flow is affected by chronic constipation. When the menstrual function is at fault rectal examination is very rarely made, and as a consequence the cause remains undiscovered.



Baer reports that in 191 cases of gonorrhea in women there was rectal involvement in 30%. From this it is apparent how important it is that a proper examination be made in these cases so that no involvement of the anus and rectum is overlooked, especially so when complaint is made of a sensation of heat and burning in the parts which is increased on defecation.

Uterine and bearing down pains, and backache, may be caused reflexly by a fissure of the anus.

In diseases of the male genito-urinary tract rectal examinations are of great assistance in arriving at a correct diagnosis. When an individual comes to the genito-urinary surgeon complaining of an irritable condition of the bladder, with a local sensation of burning, tenesmus, and frequent and painful micturition, it is well to remember, if no local cause be found, that a proctoscopic examination may disclose a chronic sigmoiditis as the causative factor, and all symptoms may cease after a thorough evacuation and treatment of the sigmoid. In some instances there may be in addition an undue amount of residual urine which disappears as soon as the fecal accumulation in the rectum is removed. Like symptoms may arise from the presence of a carcinoma in a sigmoid flexure.

Albu has written that beginning cancer of the prostate gland may cause pains in the rectal region which occur intermittently and gradually grow more severe. These pains are often mistaken for neuralgia of the rectum and the real condition is only discovered on rectal examination.

In some instances dysuria and vesical tenesmus can be relieved only after a rectal examination has shown that these symptoms are caused reflexly by inflamed hemorrhoids, perineal abscess, acute proctitis or dysentery.

Some cases of cystitis, as pointed out by Ware, are caused by bacteria which have invaded the bladder from the rectum. Examination possibly may show a condition of coprostasis with lesions of the rectal mucous membrane.

Marked enlargement of the inguinal ganglia without any apparent cause may be due to a chancre of the anus. When a patient complains of pain on defecation a chancre or a chancroid may be disclosed instead of the expected fissure.

Frequent and painful urination may be caused by a chronic intussusception of the sigmoid colon; also from a fissure of the anus. The latter may give rise to all the classical symptoms of a urethral stricture, and the urethra may receive treatment without avail until the anal lesion is discovered and treated. On the other hand a stone in the bladder or a urethral stricture may cause rectal symptoms only, and the true cause thereof can be found only after an examination has eliminated the presence of rectal disease.

Vesical, prostatic, urethral and seminal vesicle disturbances have been observed to result from local or reflex irritations from chronically retained fecal accumulations. A rectal examination will often clear up a vexatious problem for the genito-urinary surgeon.

In conclusion, I wish to urge that a digital, and if possible, an instrumental examination of the anus and rectum be made a routine procedure. A proc-

tosopic examination should follow especially when the examining finger has felt something abnormal, or when non-palpable conditions are suspected.

Although according to Mummery the use of the pneumatic sigmoidoscope is attended by no dangers whatever, Sultain has reported that several times the rectum has been ruptured by extreme inflation with air. It is advisable that individuals of lowered vitality, with marked relaxation of all muscles, in the presence of old inflammatory conditions, should not be subjected to proctoscopic examination.

#### Discussion.

Dr. Langley Porter, San Francisco: I wish to emphasize the value of rectal examinations when we have to deal with acute or chronic abdominal conditions in children, and especially in infants. One point the reader has omitted and that is that it is practically useless to make rectal examinations of young children except under an anesthetic. Under an anesthetic such conditions as suspected appendicitis can be cleared up and a diagnosis made very readily. In a child of 2 years the examining finger can explore the abdomen as far as the umbilicus if the child be well anesthetized. Especially is this true in cases of intussusception; the finger discovers the absence of the caecum coli in the iliac fossa and finds the intussuscepted gut at some higher point.

Dr. G. B. Somers, San Francisco: From a gynecological standpoint the importance of an examination of the rectum goes without saying. In fact it should be a routine part of such examinations. I have been very much astonished to find how frequently a mistake is made, by practitioners who ought to know better, in taking the pressure of the cervix against the posterior vaginal wall for a foreign body. The patient complains of constipation, some heaviness or sensation of obstruction and the practitioner making the examination, forgetting how thin the septum is and feeling the body of the cervix, makes up his mind that he feels a foreign body or exudate or new growth. Again the mistake has been frequently made of taking this pressure of the cervix for retroversion. This simply illustrates how thin the recto-vaginal septum is and how easy it is to map out the pelvic organs through the rectum. In an unmarried woman rectal examination is permissible, and it will be found that the pelvic organs can be mapped out as well as through the vagina. Recently in examining the rectum and bowel higher up I have used the inverted position, having the patient practically standing on her head, the legs and thighs on the table, her head on the floor. With this method the bowel balloons out with the in-rushing air and one is able to examine as high as the sigmoid. In making rectal examinations there is no instrument equal to the Kelly speculum or some form of it.

#### FUNCTIONAL PERIODICITY IN WOMEN AND SOME OF THE MODIFYING FACTORS.

By CLELIA DUEL MOSHER, A. M., M. D., Palo Alto.

(Continued from Page 8, January issue 1911.)

1. Type of respiration. In April, 1894, Dr. G. W. Fitz of Harvard University reported<sup>9</sup> to the Boston Society of the Medical Sciences and in May of the same year I presented a preliminary report<sup>10</sup> for a Master's degree at Stanford University, on the normal type of the respiratory movements, in which we both derived the same general conclusions, although working independently. Until 1896 all the physiologies stated that men breathed abdominally and women costally; but these researches established the fact, now generally accepted, that

there is normally no difference between the sexes in the normal type of respiration. This discovery has emphasized strikingly the close relation between the respiratory type and pelvic health and the part which gravity may play in altering them. In order to show this more clearly, I may quote from Dr. Howell's physiology to refresh our memories on the subject of the circulation:

"When an animal, accustomed to go on all fours, is held in a vertical position, the great vascular area of the abdomen is placed under an increased pressure due to gravity, and unless there is compensatory contraction of the arterioles or of the abdominal wall, so much blood may accumulate in this portion of the system that the arterial pressure in the aorta will fall markedly or the circulation may stop entirely. In most cases compensation takes place, and no serious change in the circulation results. In rabbits, however, which have lax abdominal walls, it is said that the animal may be killed by simply holding it in the erect position for some time. For the same reason an erect posture in man may be dangerous when compensatory nervous reflexes controlling the arteries and tone of the abdominal wall are thrown out of action, as for instance, in a faint or in a condition of anesthesia."<sup>11</sup>

Let me also call to mind the well-known anatomical fact of the very abundant supply of blood in the pelvic organs and the arrangement of the tortuous arteries and veins which favor the physiological congestion of these organs at the time of menstruation. And it must not be forgotten that the vena cava inferior is without valves, which makes it the easier for this column of blood to be hindered by gravity in its flow back to the heart. Nor should the existence of a negative pressure in the thorax be overlooked. Thus the thoracic portion of the vena cava inferior is under less pressure than the abdominal portion. To quote Dr. Howell:

"At each inspiration blood is 'sucked' from the extra-thoracic into the intra-thoracic veins. So far as the vena cava is concerned, the effect is augmented by the simultaneous increase in abdominal pressure. For as the diaphragm descends it raises the pressure in the abdomen as it lowers the pressure in the thorax. The two factors co-operate in forcing more blood from the abdominal into the thoracic cava."<sup>12</sup>

The relation between these physiological facts and the fashion of clothing for women may now be considered. At puberty girls are put into corsets, tight bands, and heavy, unsupported skirts which interfere with the respiratory movements, lessening the action of the diaphragm, rendering the abdominal muscles flabby and inefficient, in some cases changing the type of respiration from abdominal to costal. Thus arise conditions which promote excessive abdominal and pelvic congestion. This in turn changes the physiological periodic congestion of the normal menstrual flow into a chronic congestion which, if not pathological and the beginning of inflammatory processes, certainly prolongs unduly the menstrual flow. When we remember, moreover, that the blood which is lost is just as good as the blood remaining, and represents just so much potential energy, we need not be astonished that women have discomforts and are inefficient, nor that girls are pale and anemic.

The results of deficient muscular development are no less injurious than those of improper clothing. As the diaphragm descends the abdominal muscles

are relaxed, increasing the size of the abdominal cavity to permit the descent of the contents, and normally there is no undue thrust downward on the pelvic contents. With the squeezing of the abdominal contents by the contraction of the abdominal muscles, more blood is forced from the abdominal cava into the thoracic portion. Furthermore, since these abdominal muscles play an important part in child-birth, they should be as strong and efficient as possible. Nor is this all: they are an essential part in the support of the kidneys in their normal position, and the miseries of a misplaced kidney are not infrequently called dysmenorrhea. Here is certainly a very strong argument for the muscular development of girls and women and for a rational fashion of dress.

As to the duration of the menstrual flow there is considerable discrepancy among different observers, but it is usually given as from four to seven days. The duration of flow should be estimated for the time during which there is any show of color. There is a lack of uniformity and understanding in answering this question. Some women give the number of days during which there is much flow, others the number of days during which there is any show of color.

The following table, taken from Kelly, is reprinted that it may be compared with Table II, which also shows the duration of menstruation in 130 average women. (See Table No. I.)

A comparison of Table I of Dr. Kelly's cases, and Table II of my own cases, suggests that the shortest menstrual periods (1 or 2 days) in Table I were due to women giving only the days of principal flow instead of the total duration.

Table II, although made on the basis of single observations, is sufficiently accurate to show that the menstrual period is too much prolonged in the majority of cases. In these 130 average women the main flow is over in from two to three days, while the congestion and consequent bleeding is prolonged to four, five, six and even eight days. If this condition (which is not found in uncivilized races) can be remedied even partly by getting women into loose dress, by giving them in a recumbent position deep breathing during the menstrual period, thus counteracting the effects of constriction and gravity, and by developing their muscles in the intermenstrual period, it will be of manifold advantage both to the individual woman and to the race.

It could be no advantage to the organism to have the flushing of a muscle prolonged beyond its need for action, for rebuilding and carrying off its waste; nor to keep the digestive organs full of blood beyond the period of activity. It must then be equally undesirable for the uterus to be kept in a condition of chronic congestion. There can be no doubt that it is more physiological to have the uterine congestion and flow confined within definite limits, for the slight show of color prolonged for several days (Table II) represents congestion beyond the period of proper functioning. (See Table No. II.)

In a group of average women I have produced a marked improvement at the menstrual period by using so simple a measure as deep breathing. All constricting dress having been removed, the women,



in the recumbent position and with knees flexed to relax the abdominal muscles, have done deep breathing once or twice a day during the menstrual period, with the result that all pelvic sensations, depressions and minor symptoms usually included in the term dysmenorrhea have disappeared. In a number of cases also the period has been shortened more nearly to conform to the period of principal flow. These experiments will be presented in detail in a later paper.

These experiments tend to emphasize still fur-

TABLE I.

Showing Duration of Menstruation in 1000 Cases (from Kelly). <sup>13</sup>	
1 day.....	15
1-3 days.....	15
2 days.....	36
2-4 days.....	59
3 days.....	105
3-5 days.....	85
4 days.....	115
4-6 days.....	112
5 days.....	136
5-7 days.....	83
6 days.....	68
6-8 days.....	37
7 days.....	122
7-8 days.....	12
Total.....	1000

TABLE II.

Duration of Menstrual Flow (130 Cases), Arranged to Show the Relation Between Total Duration, Main Flow and Prolonged Flow.				
Total duration of flow in days.	No. of cases.	No. of days on which flow amounts to considerable.	No. of cases.	Diff. in days between total flow and main flow, i. e., prolonged flow.
3 .....	7	1 1½ 1½ 1½	1 3 3 1	2 1½ 1 ½
3½ .....	1	1½	1	1 to 2
3 to 4 .....	5	1 to 3	1	1
3 to 5.....	1	3	1	0-1
3 to 6.....	1	1 to 4	1	0-2
4 .....	23	1 1½ 2 2 to 3	1 12 1 8	1 2½ 1 1 to 2
4 to 5.....	17	1 to 2	1 5 10	3 to 4 2 to 3 1 to 2
5 .....	42	1 to 2	12 1 23	3 to 4 2 to 3 2 to 3
5 to 6.....	8	2 to 3	1 1 1 5	1½ 1 to 2 1 3 to 4
5 to 7.....	1	2 to 3	1	2 to 3
6 .....	15	2 to 3	1 1 8 3 2	3 to 4 3 to 4 3 2
6 to 7.....	1	3	1	1 to 2
6 to 8.....	1	5	1	1 to 3
7 .....	6	2 3 4	4 1 1	5 4 3
8 .....	1	4	1	4
Total cases	130		130	

ther that the upright position, the force of gravitation and constricting dress are conjoined factors in hindering the circulation of the blood from the pelvis to the heart, and are therefore important factors also in producing dysmenorrhea. Since in women of the uncivilized races we find the minimum of flow with no disability and perfect functioning, there can be no danger in gradually lessening by such physiological methods the period of prolonged pelvic congestion.

In a recent report<sup>14</sup> on operations for dysmenorrhea, Dr. Norris and Dr. Barnard call attention to the importance of determining the causes of dysmenorrhea. Among the cases cited are the following:

	Cured permanently	Not cured	Temporarily cured
10 cases digestive dysmenorrhea .....	0	8	2
7 cases spastic and congestive symptoms combined .....	3	3	1

If we assume that the temporary improvement in three cases was the result of the psychological effect of the operation, we conclude that out of 17 operations for dysmenorrhea 14 were unsuccessful and were therefore unnecessary. Such digestive and congestive dysmenorrheas might possibly be interpreted as due to altered blood pressure and treated as such without operation. As long ago as 1892-6 a number of the leading gynecological surgeons urged conservatism in removing the ovaries of women, a custom then quite too prevalent.<sup>15</sup> The first step toward a more conservative action in regard to the treatment of dysmenorrhea was made when a great gynecological surgeon wrote a medical gynecology in which hygiene, clothing, muscular development, etc., were strongly emphasized.

As early as 1894 Kelly urged the importance of the general practitioner recognizing "the purely hysterical" cases of dysmenorrhea, in whom local treatment of any kind is positively injurious. He also calls attention to the type of dysmenorrhea due to chlorosis;<sup>16</sup> and to the "hysterical and neurotic" type, by whom moderate pain is described as agony. I have frequently found that women think they ought to have pain to be normal, and describe what may be properly called "pelvic consciousness" as pain. This has been carefully noted in my records as a separate group, and is probably due to blood pressure.

The preliminary fall in blood pressure<sup>17</sup> which precedes the main fall in general blood pressure, which occurs from 5 to 7 days before the menstrual flow, and which is an abrupt drop and an abrupt return to the mean average pressure, is often associated in a certain number of women with pelvic consciousness, which causes the women to think the menstrual period is coming. This preliminary drop may be the basis for the unexplained "intermenstrual pain."<sup>18</sup> The periodic drop in blood pressure which is common to both men and women is probably a sexual rhythm. It is not a menstrual rhythm, as has been shown.

Menstruation is but one small part of the activity of the reproductive machinery. Because it is an obvious function, everything occurring at or near

the time of this periodic flow of blood from the uterus of the woman has been referred to this function. A new and more limited view of menstruation must come. The fundamental conception of a periodic activity of the reproductive system in both men and women must take its place, and the physiological processes and the attending sensory disturbances in both sexes should be referred to the fundamental sexual rhythm, not to some one small part or expression of this activity in one sex. If there be an internal secretion which generates the sexual rhythm, then it will be found not only in the female but also in the male. Menstruation in woman, with its own disturbances and the coincident functional disturbances in other organs due to the lowered general blood pressure, have been greatly exaggerated by the bad hygiene of women. Physiological congestion is being prolonged unduly until it borders on the pathological. This condition, which is favored by the upright position, has resulted from the lack of muscular development and from constricting dress, changing the type of respiration or at least seriously interfering with the descent of the diaphragm, and rendering the abdominal muscles flabby and inefficient. Bad posture<sup>19</sup> which tends to support the rectum favors the development of constipation and alters the support of the uterus, making displacement easier. It deprives the bowel of the favoring effect of gravity on the waste and increases the unfavorable effect of gravity on the uterus.

In the emphasis and exaggeration of this one expression of the sexual activity of woman, her efficiency has been lessened and we have lost sight of the common biological basis of life. What the race needs is not undue emphasis of the sexual characters, but better and more efficient all-round perfect-functioning human beings.

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## THE RELATION OF GASTRIC HEMORRHAGE TO CHRONIC APPENDICITIS.\*

By CHARLES G. LEVISON, M. D., San Francisco.

Formerly in operations upon the stomach, gastroenterostomies were frequently made notwithstanding the fact that organic disease was absent. These operations were performed in the belief that the symptoms from which the patient was suffering would be relieved; occasionally, when an operation was carried out for the relief of gastric hemorrhage that had been complicated with pain and hyperacidity, the stomach when exposed was found quite free from perceptible involvement. It was particularly in this class of cases that the anastomosis would be made even in the absence of lesion, and harm instead of benefit was frequently the consequence. The end results of these operations were so unsatisfactory, that it soon became evident that they were not to be performed without specific indications. In cases where these indications were not observed, the persistent vomiting of bile was a frequent consequence and resulted from the so-called vicious circle; besides the operation left the symptoms—pain, hyperacidity and hemorrhage—uninfluenced.

The consensus of opinion at the present time is that ulcers should be excised whenever feasible; that an operation for hemorrhage should not be performed until medical measures have proven futile, and that the thin, dilated, toneless stomach should not be made the object of surgical interference. Furthermore, when the diagnosis of organic disease of the stomach is made and is not confirmed at operation, the stomach should not be disturbed, but the abdomen should be closed if no lesion is demonstrable.

The following history will serve as a type of the class of patients referred to:

A. B., age 35 years.—There was a marked neurotic history and the patient has always complained as far back as she can remember. She has borne two children and her pregnancies have been without incident. Subsequently she developed a marked diastasis recti associated with a general visceral ptosis. She gave a history of hyperacidity of the stomach contents, pain in the epigastrium, frequent vomiting and occasional haematemesis. The stomach was distinctly dilated and the patient would vomit food occasionally that she had eaten the day before. The diagnosis seemed easy to make,—a gastric ulcer that had produced a narrowing of the pylorus and consequent stasis.

At the exploration, a thin, dilated stomach was found, but there was no evidence of organic disease. A Finney operation was performed on account of the symptoms. Immediately after the operation the patient began to vomit bile, which persisted for months to such a degree that it became necessary, one year later, to reopen the abdomen.

\* Cooper College Science Club, April, 1910.



At the second operation the gastro-duodenal opening was found as it had been originally made and was fully two inches in diameter. As it was thought (this was a few years ago) that a gastro-jejunostomy might relieve the symptoms, a posterior no loop operation was performed. The condition remained as before without any relief of the symptoms, the vomiting of bile being in no wise influenced. Then a severe pain developed and a mass became evident in the left upper quadrant of the abdomen. On account of the pain associated with the tumor, that was the size of a fist, the abdomen was opened one year later. At operation the induration, which was found to be due to a thickened adherent omentum, was removed. At the time of the operation, both openings were found as they had been originally made with no tendency to contraction. The vomiting of bile has, however, persisted up to this date, although the patient is fairly comfortable at times.

I am quoting this history at length because it represents a type that is now being recognized at operation, and as a consequence, the results of surgery of the stomach are at present more satisfactory than they were in former years.

In connection with the previous mentioned class of patients, there is a condition to which attention has been called by Moynihan in a recent number of the "British Medical Journal." This article in my opinion is one of the most important publications that has appeared for some time.

In taking up the subject I can do no better than to describe the symptoms presented by the patients that have come under my observation.

*Indigestion.*—This is a common symptom. Belching is always present and is the result of flatulence that often appears immediately after eating. Flatus is not passed per rectum in any great quantity. The tongue is coated and the breath has a characteristic odor. Constipation is usually present. The patient seldom gives a history of peritoneal inflammation.

*Pain.*—Pain is usually present and is frequently felt in the epigastrium. It may not be severe. At times the pain is most marked at the left costal angle in the situation where the tenderness and pain of an ulcer of the lesser curvature is felt. Tenderness in the lower right quadrant is not always present, but the patient often states that a sensation of fullness is felt in this region, and I have seen patients rub the right side with the hand when rising from a chair and if questioned would answer that they have not touched themselves; it was evident that they rubbed themselves on account of a sensation of fullness and not on account of any pain. The pain is generally increased after exercise, as in walking, tennis playing and dancing, and it is also aggravated as a result of mental excitement and worry. It does not appear with the regularity of a duodenal ulcer but it comes on in a most capricious manner;

the pain does not radiate to the back or to the shoulder.

*Vomiting.*—The vomitus consists of an acid sour substance and it may be small in quantity; relief is felt immediately and is probably due to a relaxing of the pyloric spasm. It is now recognized that pylorospasm is often the cause of pain as well as the vomiting in this class of case.

*Haematemesis.*—The vomiting of blood is not an infrequent symptom; at times but a mouthful or two is thrown up or as much as a basinful may be vomited.

*Hyperacidity.*—There are sour eructations. Hyperacidity is often found to exist; diet does not altogether relieve the symptoms, as is the case in gastric ulcer, so that the patient frequently starves himself into emaciation in the hope of relief.

*Oesophagospasm.*—This symptom is occasionally present and it is felt by the patient as a lump low down in the oesophagus. Difficulty in swallowing does not often accompany the spasm.

*Pylorospasm.*—Pylorospasm is a condition that frequently causes a dilated stomach; pain and vomiting are also frequent results of this reflex. As the subject of pylorospasm is of such importance I will avail myself of the liberty of quoting in detail from Mr. Moynihan's paper:

"On opening the abdomen of a patient whose history I have described, no flaw can be discovered in the stomach even after the most minute and most meticulous care has been expended. There is no thickening, no whiteness, no puckering, no adhesion. The stomach looks in every particular quite normal. But if it be allowed to lie quietly for inspection (and it is better to watch it while the abdominal wall is raised up, before this organ is handled) a most interesting condition is displayed. The stomach in its pyloric half is seen to be in vigorous and excited action. At the point where the vertical and horizontal parts of the stomach merge a contraction starts and spreads towards the pylorus, and at last involves all the pyloric antrum. The stomach becomes thick, contracted and pale; its muscle is evidently in a state of strained and vigorous action, and the channel through it is almost obliterated. On the cardiac side of this area of spasm the stomach is quiet, a little distended even, and shows no movement. I described this condition for the first time in 1904 in the following words: On several occasions during the last few years I have watched the stomach intently for several minutes, and have seen the onset, the acme and the gradual relaxation of a spasmodic muscular contraction in its walls. Quite gradually the stomach narrows, and the wall becomes thicker and almost white in color; when taken between the fingers the contracted area feels like a solid tumor. The spasm may be so marked as to prevent a finger being invaginated through the segment affected. The appearance presented is very striking. I have seen it in the body of the stomach and at the pylorus, but never at the fundus. As slowly as it

comes on the spasm quietly relaxes, and the stomach assumes its usual form. When this condition is seen it may be predicted that a lesion will be found in the appendix. In summing up the symptoms of this condition, the picture of gastric ulcer presented is one that should satisfy the most exacting German clinician, namely: Pain and tenderness in the epigastrium, hyperacidity and haematemesis; but when the abdomen is opened, the stomach is found to be absolutely normal and this after a most careful and painstaking examination. The exploration of the duodenum and the gall bladder are also negative, but when the appendix is examined it is found to present definite pathological changes. With the removal of this appendage, the patient is completely restored to health."

My experience has shown that patients affected with oesophagospasm have been relieved by removing the appendix, so that even the oesophagus is not beyond the reflex from appendix irritation.

In confirmation of Moynihan's observations I herewith present the following history:

E. B., age 26 years. Family history negative. She gives a history of having had an ulcer of the stomach that healed under medical treatment at about the age of eighteen. About four years ago the patient began to suffer with severe pain in her stomach that appeared most often after eating. Three months later she vomited 1½ ounces of bright red blood. She was then placed upon a diet and there was no further bleeding. The pain persisted, however. She became very pale and three weeks later she was advised by Boas to go to Carlsbad, which she did; at that time she was pregnant. As there was no improvement she was sent to Wiesbaden, where her condition changed somewhat for the better. She then remained fairly well for some time. She was confined after a seven months' pregnancy that was accompanied throughout by persistent nausea and vomiting, but there was no blood vomited. Ever since she has been ailing; pyrosis has been marked. The symptoms of pain and acidity have always been pronounced.

She was examined by Dr. P. K. Brown, October 12, 1909. In the stool he found occult blood, which disappeared under the influence of a Lenhardt diet. Blood was found in the stool occasionally despite all treatment. Five weeks later the patient vomited a cupful of bright red blood. She was much weakened in consequence. In the interval there were several slight hemorrhages that occurred every few days. Several weeks later the patient developed an attack of acute appendicitis which subsided after a few days. Last Christmas she had a severe hemorrhage, when she vomited a basinful of bright red blood. An examination revealed tenderness at the left costal margin that was quite severe upon pressure. A slight rigidity was also present. An examination of the stomach contents showed a hyperacidity to be present; lactic acid was absent. The diagnosis of an ulcer occupying the lesser curvature of the stomach was made with confidence.

At the operation the stomach, gall bladder and duodenum were found to be absolutely normal without any sign of organic change. The appendix was diseased and adherent and it was the only abnormal condition that was found to be present; the appendix was removed and the abdomen was closed after a few tubal adhesions were separated. The patient's convalescence was uninterrupted and she has had no disturbance whatever since the operation. Pain has left her and all her symptoms have entirely disappeared. She has not brought up any blood since the operation.

#### Discussion.

Dr. Philip King Brown: The point of interest in the case reported by Dr. Levison lies in the fact

that not only had an ulcer been diagnosed by Boas, when she was 23 years old, but her first symptoms at 18 were diagnosed as ulcer by Rosenheim, in Germany, and, while I have no hesitancy whatever in acknowledging my own failures, it is a satisfaction to feel that I was in good company, having made the diagnosis of gastric ulcer in this case. The point of most interest is the wide range of troubles in which you get blood from the stomach as a symptom. Many of these pathological conditions resulting in hematemesis have nothing to do with the stomach. It is of particular interest that Moynihan calls special attention to the relation of hemorrhage from the stomach to diseases of the appendix. There have been reports upon the same thing by Dieulafoy and also by Rosenheim, who himself recites a case of a perforated appendix in which the surgeon refused to operate, believing that the patient had had a perforated gastric ulcer on account of the vomiting of blood. The patient died and at autopsy a perfectly healthy mucous membrane was found in the stomach, but a perforated appendix was responsible for the entire trouble. In nervous people especially, they call attention to the spasm of the pylorus in connection with these cases. It is now well recognized, and I think is mentioned in the modern text books, that spasm of the pylorus occurs very frequently in appendicitis. Dr. Levison has referred to the fact that pain is very misleading. This is illustrated in our case by the fact that the seat of the pain was in the lesser curvature, and by the fact that there never were any signs whatever of a stasis in the stomach, which leads us to suppose that there was no interference with the outlet of the stomach and that the ulcer was probably in one of the more fixed parts of the stomach, the cardiac end.

I have seen hemorrhage from the stomach in connection with several other conditions. It has been reported, of course, many times in connection with gall stones, and there again the earliest reports are from Germany. Naunyn refers to hemorrhage in gall stones. It occurs very frequently in women in connection with vicarious menstruation, not always with hematemesis, but in the washing of the stomach blood has been found in the stomach content, especially during the menstrual period. Here a point in the differential diagnosis lies in the fact that blood from an ulcer, even in very small quantities, is accompanied by nausea and very frequently by vomiting. The nausea and vomiting may, and usually are both absent in bleeding from vicarious menstruation. Patients so often vomit blood in gastric ulcer that it is frequently difficult to obtain blood in the stools. That was true in the case reported. The stools were examined a good many times and always for two or three days after the vomiting of blood, but it was only rarely found in the stools. The patient was on the Lenhardt diet without meat. She must have gotten rid by mouth of all the blood that occurred.

Dr. E. Schmoll: I think that gastric hemorrhage in connection with cases of appendicitis is very interesting. We frequently find cases where gastric hemorrhage has taken place to such an extent that a diagnosis of gastric ulcer has been made. I remember three or four cases in which I advised operation for gastric ulcer and no gastric ulcer was found. One woman had had repeated hemorrhages over a period of ten years. At the time I was consulted she had vomited about 2½ liters of blood within three days and was absolutely exsanguinated, and the surgeons had refused to operate because of the low hemoglobin. She was put on the Lenhardt treatment and recovered very nicely, gaining about 20 pounds. Two or three months after this we advised operative procedure, as we thought that the ulceration had lasted too long to heal. A laparotomy was performed, but no evidence of ulceration was found. A gastro-enterostomy was performed without any return of the hemorrhage during the last three years. I recently saw a case with Dr. Stillman in a girl about 22 or 23, who had had re-



peated hemorrhages for the past ten years. She had been on the Lenhardt treatment and her history had been published as one of the successful cases treated by the Lenhardt method. Three or four months ago she again had a hemorrhage and the symptoms were typical of gastric ulcer; we advised operation. A small thickening in the fundus of the stomach was found; all the glands along the curvature were enlarged and there were some adhesions. However, the mucosa was not thickened. The Finney operation was performed and the symptoms disappeared. Such cases show that we should be more careful in our diagnosis of gastric ulcer, and I think that it should only be diagnosed when the symptoms are absolutely classical. Besides hemorrhage there should be a distinct history of pain with distinct relation to food and position of the patient. I have found it to be one of the most reliable signs of ulceration if turning a patient to the opposite side the pain diminished almost immediately. Most patients can sleep on the left side when they cannot lie on the right side at all.

Dr. E. Rixford: Dr. Brown said that gastric hemorrhage in connection with appendicitis is not an unusual occurrence, but it seems to me, judging from a considerable experience, that it is very rare. I have yet to find in my own practice a single case in which there has been anything at all comparable to gastric hemorrhage in connection with appendicitis. Of course, since Moynihan's article and the work of Mayo and a good many other abdominal surgeons, the evidence of pyloric spasm as indicating something wrong lower down in the bowel has become rather full, and we are inclined to look upon it as a physiological protective process. That such a spasm may be sufficiently vigorous to cause bleeding from the mucous membrane is perfectly possible and probably there is something more to it than that. There has recently been some work done with regard to congestion of the base of the right lung as an early symptom in appendicitis. One of our own students here recently had a gangrenous appendix and when examined by the clinicians it was a question whether his trouble were not really a beginning basal pneumonia of the right lung. There was distinct evidence of congestion which all cleared up after the removal of the gangrenous appendix. I have had one case in my experience which might be mentioned in connection with this, though perhaps the connection is rather remote. The patient was brought to the hospital suffering from symptoms of renal or ureteral calculus; there was hematuria and localized pain, with very little, if any, muscular spasm on the right side of the abdomen. The diagnosis of renal calculus seemed justifiable. Examination and washing out of the bladder by a prominent specialist failed to find any calculus. His opinion was that the bleeding was due to a calculus in the ureter, probably located at a point where the pain occurred. Incision over this region by myself showed a very much inflamed appendix, not lying very far from, though not adherent to the ureter. Removal of the appendix was followed by a complete subsidence of the hematuria. Whether these phenomena of congestion have any relation with the phenomenon of bleeding I am not prepared to state. The thing is certainly suggestive.

Dr. W. E. Garrey: We know the effect of absorption of toxins on the condition of the cells of the kidney and the appearance of blood in the urine; it might be well, in the cases of the type under discussion, to have a histological examination made of the mucosa of the stomach to determine whether or not there is any pathologic change in the secreting cells of this organ. In connection with the recent work done on internal secretions, substances have been found along the whole alimentary tract which have an effect upon the whole metabolism of the body. I recently saw some of the results of work done by Lewis and Mathews on the duodenum, showing that death resulted from removal of certain parts of this structure, but had no relation whatever to the surgical operation itself other than the re-

moval of the secretions. The death took place seven days after the operation with definite toxic symptoms which these workers attributed to the removal of a necessary internal secretion. A considerable question has been raised as to the possibility of the appendix having such an internal secretion. We know there are substances which are secreted in the upper portion of the alimentary tube not found in the lower part, and vice versa—a consideration which we ought to bear in mind as possibly related to the conditions reported by Dr. Levison. Other facts have been brought out by Moynihan's observations on the movements of the stomach, which are the first clinical corroboration of Cannon's experimental work, in which he shows that the peristaltic movements of the stomach begin toward the antrum and continue through the pylorus. The antrum is the most motile part of the stomach and this is the only clinical report of this fact I have seen.

#### A METHOD FOR THE DETERMINATION OF THE PUS IN DISEASES OF THE ACCESSORY CAVITIES OF THE NOSE.\*

By HENRY HORN, M. D., San Francisco.

When a patient comes to us with a fever, an acute frontal headache, a forehead which is exquisitely tender to pressure and an examination of the nose reveals thick yellow pus in the region of the middle turbinate, we can say with a fair degree of certainty that we are dealing with an acute inflammation of the ethmoid cells and the frontal sinus.

When we have a patient who complains of a purulent discharge from one side of the nose, transillumination of that side gives a black shadow and the other side is perfectly clear, and an examination of the nose shows pus coming down over the middle of the inferior turbinate, we can also with a fair degree of certainty diagnose an empyema of the antrum of Highmore on that side.

Suppose, however, we have a patient who complains of a chronic nasal and pharyngeal catarrh, indefinitely located headaches, dyspepsia, and a general run-down condition, and we can discover no tenderness over the frontal region. We examine the nose and note nothing of any importance. Perhaps a few crusts, a little atrophic condition of the mucus membrane, but no pus, and no swelling or discharge of any kind.

Less than five years ago a diagnosis of chronic catarrh would have been made, and the patient would have been sent away with a prescription for a nasal spray. Perhaps we might have had our doubts as to the accuracy of our diagnosis, but repeated examinations would have only revealed exactly the same conditions. We would, in other words, have reached the limits of our resources. Today we are in an entirely different position, and the help has come to us largely through the use of negative pressure or suction.

An ocular demonstration is what we have when we make a successful diagnosis by means of suction. We not only see the pus ourselves, but can show it to the bystander. Many a "doubting Thomas" have I brought to the operating table, when I could demonstrate to his own sense of smell the foulness of the pus sucked from his own nose.

The method of diagnosis which I will show to

\* Read at the Fortieth Annual Meeting of the State Society, Sacramento, April, 1910.

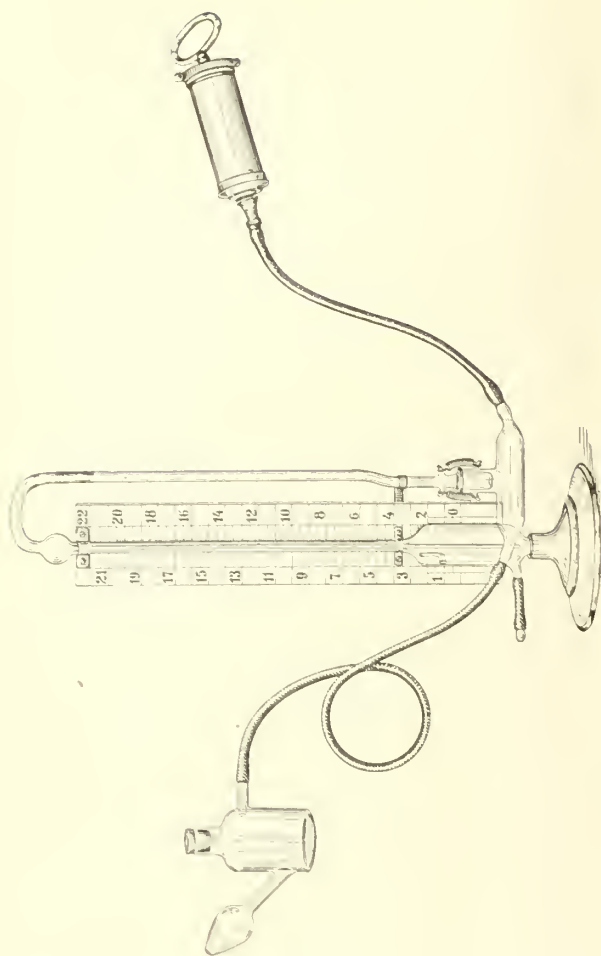


Figure 1.

you, and all the apparatus, is the result of my experiments while working as an assistant under Geheimrat Walb of Bonn, Germany. The facts which I will relate to you have been proved over and over again by myself and other investigators.

The historical development of the subject of the diagnosis of nasal accessory cavity disease, by means of negative pressure, would not interest you. The name of Sonderrmann is no doubt familiar to all. His first important article was published no longer ago than 1905. He invented an airtight rubber mask which fitted over the mouth and nose, and by means of a pear-shaped rubber ball, negative pressure was brought about. He was seeking a cure for ozena, a thing which has not yet been found. In his various later publications he called attention to the value of the method in the diagnosis of all forms of accessory cavity disease.

The whole matter was, however, in an unsatisfactory state. The Sonderrmann mask was dirty, impossible of proper sterilization, and sucked from both nostrils at once. The strength of the ball varied with its age, maker, condition of the rubber and many other factors. In a large proportion of the patients the machine would not work, and with a man wearing a beard or mustache it was unavailable. There was no way to determine how much strength one was using or how much was necessary.

The disadvantages of the various nose pieces then in use and the fact that no way had been sug-

gested of measuring the dosage, led me to the development of the present system, and after three years of experimental work covering thousands of experiments in every variety of accessory cavity disease, both acute and chronic, Walb and myself published an article<sup>1</sup> in which we were able for the first time to show:

1. A mercury manometer by which the dosage could be measured.
2. A nose piece which overcame all the objections existing in the other forms.
3. A metal pump, whose force remained forever constant and enabled us to carry out the procedure every time in every case.

The manometer (Fig. 1) is mounted on a heavy foot, and carries a metal scale divided into centimeters. The mercury is held in a chamber so constructed as to eliminate the possibility of the mercury being blown or spilled, no matter in what position the apparatus is carried. On the right is a small protection chamber connected with the machine by means of a movable, ground glass joint. This chamber protects the apparatus from any sudden movement of the patient and catches all moisture which collects in the tubes or pump.

The nose piece (Fig. 2) is made of glass, easily sterilized and can be corked and put away for an examination of its contents. The olive tip fits any nose, and the little projection on the outlet prevents any secretion from entering into the rubber tube.

The pump which I use is the ordinary, medium sized Bier's suction pump. Previous to the publication of our article, there were nothing but rubber balls spoken of in the publications concerning these cases. Their disadvantages were numerous. In a series of experiments in which I compared the various makes on the market to the metal pump, I found without exception that the balls varied in strength, with their age, amount of use and place of manufacture. The greatest objection, however, to the rubber balls was, that after obtaining a temporary suction, by squeezing the air out, the ball must be released, and in that instant the soft palate drops back and the negative pressure is again lost. With the metal pump on the other hand, because the amount of power far exceeds anything we can use, and the recovery of the piston is so rapid, after once bringing the soft palate up by phonation, swallowing or any other method that is chosen, we have so much reserve force left in the syringe that the palate can not drop back. In this way we are able to carry out the procedure every time with a new patient, whereas with the old method we had over 50 per cent of failures at the first attempt.

The method of using the apparatus is extremely simple. In order to get a good result, however, one thing is absolutely necessary. It is very difficult to remember, after looking into a nose, the exact location of every crust, drop of pus and bit of secretion. Over and over again one will suck secretion from an accessory cavity and then declare that it was already present in the nose. A preliminary douching of the nose with a quart of salt solution is of the greatest importance. Even after this douching the nose must be examined, and every particle of mois-



ture or secretion wiped away. If, in an acute case, there is any doubt as to the patulousness of the ducts, a preliminary cocanization is of great importance.

The nose now being clear of visible secretion, we instruct the patient to hold the olive tip in the side

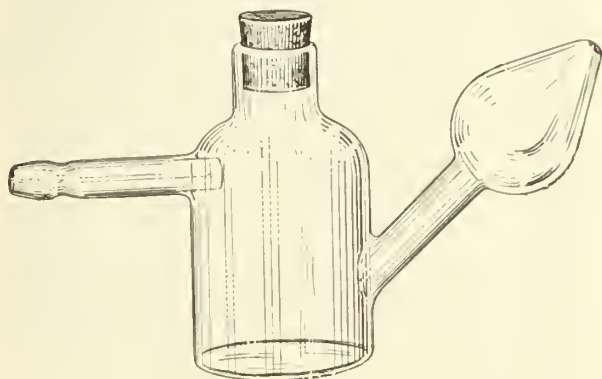


Figure 2.

to be examined and to close the other nostril with the finger. (Fig. 3). Care must be taken that the tip does not come in contact with the side of the nose or the septum. If this is the case, then the manometer will immediately show a high reading, there will be no subjective symptoms on the part of the patient, and if the finger which is holding the nostril closed is loosened, the pressure will remain high as before. (Fig. 3) The patient must be told to sing a loud and high e-e-e-e-e, which has the tendency to throw the soft palate against the posterior wall and make the naso-pharyngeal cavity a closed space. At the same time the pump must be quickly brought into use, but the height at first must not exceed 7-8 cm. The nose is then examined, and if no secretion is seen, the procedure is repeated with an increase up to 10 to 15 cm. and carried out for 15 to 30 seconds. This procedure is repeated if necessary up to 20 cm., or until one is convinced that no secretion comes from the region of the anterior end of the middle turbinate.

If now the sphenoid cavity is suspected, and the experiment gave no results with the patient's head held upright, we must bend the head far over toward the breast and repeat the manipulation. If now we find secretion coming between the middle turbinate and septum, we can be fairly certain that we have to do with an isolated empyema of the sphenoid cavity.

If the antrum of Highmore is alone suspected, then the head must be bent far over toward the sound side. Here particular attention must be paid to secretion appearing far back at the posterior end of the inferior turbinate. I have had several cases where the secretion showed only in this one place, and without a very careful examination with a brilliant illumination it was apt to be overlooked.

So far we have only spoken of the method in connection with diagnosis. In the treatment of acute cases of empyema of the frontal sinus and the ethmoid cells, it is of great benefit. Here one must be careful not to use a pressure higher than 7 to 8 cm.

This suction carried out twice a day in combination with application of moist heat has completely cured several cases within 48 hours. The relief from pain is sometimes instantaneous and the patient always feels better after the first treatment.

Its use in chronic cases can briefly be summed up as follows: By means of the suction treatment you remove more secretion in the few minutes that the treatment is being carried out, than can be drained away by natural means in twenty-four hours. I have never cured a chronic case of frontal sinus trouble where the mucus membrane was thickened and polypose, and never expect to by strictly conservative measures. However, if free drainage helps in the recovery of these troubles, then suction must be a large factor in the betterment.

The method of suction finds its greatest use in the after treatment of operated accessory cavity troubles. In a paper before the German Laryngological Society,<sup>2</sup> I reported 24 Killian operations. The time of healing was as follows:

6 cases were completely healed in 5 to 8 days.

11 cases were completely healed in 10 to 14 days.

3 cases were completely healed in 21 days.

4 cases were healed in a much longer period.

Time does not allow an analysis of these cases. It is sufficient to say that all the delayed cases were complicated with ozena, and the condition of the mucus membrane had much to do with the apparent delay. The reader can refer to the original works for more detailed information.<sup>3</sup> It must be apparent to all that by this method a new factor has entered into the after treatment of this class of cases. By means of suction a perfect drainage is carried out from the time of the removal of the gauze drains up to the time that the case is healed. It has a tendency to prevent the formation of granulations around the drainage openings into the nose, and therefore the closing of these openings takes place much more slowly.

Two points were brought out during the course of my early experiments which are of great importance. I was able to show experimentally that too great a pressure in acute cases may cause a bleeding from the mucous membrane of the sinus itself. A case of acute empyema of the frontal sinus was treated with 7 cm. pressure, until the cavity was thoroughly evacuated of its contents. A pressure of 18 cm. was used for a period of about a minute. The next day a pressure of 7 cm. sucked from the frontal sinus a clot of blood which approximated the shape of the sinus. The bleeding could only have come from the mucous membrane lining the sinus, because the nose was first cleansed with a preliminary douche and then carefully examined.

The second point, concerning the importance of which I am yet in doubt, is as follows: I have found what might be called a pathological index for the nose of every patient. That is, at a certain height of pressure we obtain bleeding from the mucus membrane of the nose. This height varies in different individuals and in different classes of nose diseases. As yet I have been unable to formulate any law to cover the matter, but think it shows that in using negative pressure we must have some sort of an apparatus to measure the pressure with.



Figure 3.

To recapitulate:

1. By means of this method we are in a position to make a more exact differential diagnosis than was formerly possible.
2. The suction treatment gives a positive result in the treatment of acute cases and in chronic cases assists nature in the reparative work.
3. To carry out a suction treatment in a proper manner it is necessary to have some sort of a manometer for measuring the amount of pressure and the dosage.
4. A constant pressure is only possible with a metal pump or a water pump.
5. Too great pressure is dangerous in acute cases.
6. By the use of suction, the after treatment of the Killian operation and other operations on the accessory sinuses can be considerably shortened.

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#### Discussion.

Dr. Kaspar Pischel, San Francisco: Since Dr. Horn mentioned that I would speak of the value of X-ray pictures, I will say that I do consider the X-rays a valuable diagnostic help. I do not think that we should rely on the X-rays entirely, for it is a bad practice on any one symptom or any one aid. We should make use of every means for diagnosis. It is not true that X-ray pictures are for the rich alone; the X-ray man who does my work will, with great pleasure, take pictures for those not able to pay. Every one of you, I am sure, can have an X-ray picture taken for the poorest patient. I think this apparatus of Dr. Horn's is a most excellent one which he has worked out very carefully. I find my method of simply using a syringe directly on the nose a very crude one. Dr. Horn did not mention

ing the patient over to the other side. As I had at times difficulty in exactly locating the point where the pus came down from the frontal sinus, I had an instrument constructed on the principle of Siegel's Oscope, which enables me to look into the nose while the pump is applied.

Dr. William Ellery Briggs, Sacramento: I have been very much interested in this demonstration. Last summer I had the pleasure of seeing Dr. Horn's instrument in a clinic in Berlin, and I was impressed with the idea that it was a step in advance in the diagnosis and treatment of sinus troubles. Any means of making our diagnosis more certain or our treatment more efficient in these obscure and difficult cases is to be gladly welcomed. If this instrument helps the rest of us as much as Dr. Horn thinks it has helped him, we will all be very thankful to him. I hope that the doctor's enthusiasm has not led him to overestimate its effect in curing cases in 48 hours. The X-ray is one of the best aids in diagnosis, but like many other means, it cannot always be depended upon by itself. The methods of exact diagnosis are constantly becoming more easily applied and more essential in this branch of medical practice, as well as in so many other fields of study.

Dr. Cullen F. Welty, San Francisco: I have been very much interested in what Dr. Horn has to say; however, I will have to make a protest. In the large majority of cases pus can be demonstrated in the middle meatus or the olfactory fissure by simple cocanization and waiting 15 minutes. All that this suction apparatus can do in the diagnosis of affections of the accessory cavities is to find pus following suction in one of the aforesaid places. When pus has been demonstrated beyond a question of doubt, you are practically in the same situation that you were from the ordinary examination, and if I am not mistaken will often overlook an affection of the Antrum of Hymore, because of the position opening. I am almost confident that the probe puncture will give much more reliable information. The illumination test gives you accurate results in perhaps 80%. The suction apparatus, I am confident, will not equal the latter, while the probe puncture gives you absolutely accurate findings in 100%. If the Antrum of Hymore can be excluded, it is indeed difficult to determine whether the pus is from the frontal sinus or from the anterior ethmoidal cells—in fact, they are more often associated than otherwise. Again you will have to resort to washings, introduction of sounds, and more particularly, I think, to the X-ray picture. The same position holds for the sphenoid sinus and the posterior ethmoidal cells. To illustrate the point in question, I recently did a Denker operation on the Antrum of Hymore,—was full of polyps and very offensive pus. In time the antrum was entirely healed, but pus continued to appear in the middle meatus. I found by more thorough examination that the anterior ethmoid cells were diseased. This has happened numberless times to world-famous operators. I go into detail to accentuate the importance of a most thorough examination, and when we need it most, this suction apparatus will be sure to fail. Up to the present time, surgeons could not speak with assurity as to the ultimate outcome of a radical sinus operation. Dr. Horn reports quite a few cases that he treated by this instrument following operation: if these observations are correct he has indeed put an instrument at our disposal that will cure all the cases,—this will result in one of the greatest achievements that has been made in nasal surgery since the advent of the Killian operation. While I do not like to question the results, I am very anxious to try this apparatus on some operated cases.

Dr. G. P. Wintermute, Oakland: I would like to ask Dr. Horn if he depends entirely upon this instrument in cases where there is very little pus, or in cases where pus is not visible, and also in his antrum cases. Can it suck the pus from the floor



of the antrum, or does he place the head in a certain way in order to get the pus out?

Dr. J. Dennis Arnold, San Francisco: I quite agree with most of the remarks which the speaker has made, and we should be the last ones to minimize the advantages of any instrument that increases our diagnostic resources. Dr. Horn has evidently devised an instrument simple in principle and of a considerable degree of efficiency. I am sure that it will be very helpful, but it cannot be relied upon alone. Richard Thomas, of Baltimore, deserves the credit of originality in this matter. His instrument had an olive-shaped nostril stop and a strong metallic pump. I saw it first in a case of Dr. Thomas' and afterwards used it on two cases of my own. One patient suffered so much pain from its application that he refused to permit me to use it a second time. Dr. Thomas told me that in three cases he thought he had ruptured the ear drum. The instrument is a good one as it stands, because with the manometer attachment one can obviate the danger of using too much force. In the diagnosis of antrac disease, the instrument is hardly needed, its chief sphere of usefulness will be in empyema of the frontal and ethmoid sinuses. I am personally of the opinion that in the vast majority of the cases of infection of the frontal sinus, the ethmoid and sphenoidal cells are also affected. In so far as the value of this instrument is concerned in regard to after treatment of Killian operation, I have had no experience.

Dr. Henry Horn, San Francisco: That the X-ray is a help in the diagnosis of these conditions, we will gladly admit, and as Dr. Pischel has said, it is a help to be used in combination with every other known clinical method. Negative pressure has the same function; it is an aid to diagnosis, and nothing more is claimed for it in this connection. The value of certain positions of the head to cause the pus to flow more freely has been worked out many years ago by Sondermann, and is a method which would naturally occur to any one. Dr. Pischel's method I tried and was obliged to give up. Of course the most exact method of locating pus in the antrum is to puncture it and wash it out. I repeat, a very necessary preliminary procedure in making a diagnosis by means of suction, is a thorough douching of the nose, so that no secretion of any kind remains behind to complicate the field. A gentle suction will bring to light a single drop of pus, and then it depends on the clinical experience of the man himself to locate it.

### UNUSUAL MANIFESTATIONS OF DEFECTIVE FEET.\*

By JAMES T. WATKINS, M. D., San Francisco.

(1). Lately a young lady was referred to me by Dr. Krotoszyner. Another surgeon had removed her coccyx for a persistent "coccygodynia." Despite the removal of the coccyx, the symptoms persisted. A careful physical examination revealed nothing abnormal except pronated feet. These had never caused her discomfort. Despite mild protests from the patient, the static error was corrected by supplying specially constructed shoes and insoles. At once her symptoms, typical of coccygodynia, disappeared and have not returned.

(2). A young man was sent to me by Dr. Breyfogle because of pain at the inner sides of his knees made worse by walking. The patient prided himself upon his powers as a pedestrian. Examination showed knees which, except for some creaking during flexion, appeared to be normal. The feet were

massive but somewhat pronated. They had never occasioned discomfort. An insole different in type from that used with the first case was prescribed. Immediately the pains in the knees cleared up and the patient was enabled to resume his long tramps.

(3). A surgeon referred to me a lady whose symptoms had seemed to call for radical gynaecological operations. The operations had not brought relief, however, to the anticipated degree. In searching for further causes the surgeon noted that the patient had badly pronated and relaxed, flabby feet, a defect of which she was not aware. On his invitation, I prescribed massage, resistance exercises, and proper shoes. Under this treatment the patient's symptoms disappeared.

(4). A lady consulted me because of a backache from which she had suffered more or less persistently from her fifteenth year. Prior to that she had had, so she said, "hip disease," and had worn a brace of the Sayre type. A most careful physical examination revealed nothing abnormal. The feet were somewhat pronated but well arched. An opportunity to observe her gait at an unguarded moment was sought. It was then noted that the patient walked with her feet markedly abducted.

The leverage actions of the feet on the ankles were little used, the former being removed from the ground and advanced through an exaggerated flexion at the knee. No discomfort had been felt in either feet or legs, however. Massage, walking exercises, and shoes and insoles contrived to combat the tendency to pronation gave immediate relief. In this case it has been necessary to modify the insoles once or twice since.

(5). With Dr. Pettit I saw in consultation a young lady who, immediately upon arising from a protracted attack of typhoid fever, had suffered acutely from pain referred to the hip joint and to the outer side of the thigh. This had been regarded as a post typhoid neuritis. Ordinary distraction by weight and pulley had given temporary relief. Examination revealed nothing abnormal in hip or spine, though the X-ray seemed to show a short femoral neck. The ligaments of the knee joint were loose and permitted side to side motion. The foot itself was markedly pronated. A shoe was prescribed which would tend to throw the weight to the outer side of knee and foot. Relief was immediate and persisted.

(6). A colleague asked me to see with him a young man who had been suffering for some time with pain in the back and extending down the outer sides of the thighs. The condition had been said to be "osteo-arthritis" of the spine. Physical examination revealed a massive "short coupled" young man with broad, rather flat feet. The spine was rather inflexible; side bending seemed to be a shade less free on one side than on the other. But the man was a waiter by occupation, and it was deemed possible that this latter feature might be the result of some occupational distortion. Waiters are peculiarly liable to foot troubles, so it was thought expedient first to treat the more obvious defect. This was done by means of appropriate shoes and insoles, and thereupon the man's disabilities disappeared.

(7). Lately I saw a similar case, and very nearly

\* California Academy of Medicine, June, 1910, Meeting.

made the same slip of mistaking a static foot error simulating an intractible double sciatica for an osteo-arthritis of the spine. Relief was had as soon as proper shoes were worn.

The preceding cases are selected to emphasize the importance of always being on the outlook for what is called "pronated foot," a condition which is capable, without presenting subjective local manifestations, of giving rise to remote symptoms mistakable for those of lesions so dissimilar as sciatica, coccygodynia, uterine relaxation and allied disorders, a variety of backaches, and spinal osteo-arthritis. The importance of being prepared to make this diagnosis is brought home to us with renewed force when it is recalled that properly the treatment of those defects for which pronated foot may be mistaken is either operative or mechanical, and that, through such a diagnostic error, the patient may not only be condemned to protracted loss of time and to great bodily discomfort, but to mutilation and even to the endangering of his life.

The explanations of the various subjective symptoms of pronated foot are to be found in the disturbances it inaugurates in the normal mechanics of the erect attitude. Each of you will, on a moment's reflection, recognize there is an attitude in which he stands erect without apparent muscular effort, and that any deviation from that attitude can be maintained only by a constant and wholly disproportional muscular exertion. The explanation of this easily recognized fact is also the explanation of the remote symptoms of pronated foot. To elucidate this let us turn to the skeleton. You will observe that the foot taken as a whole, is a lever of the second kind, the weight being placed between the fulcrum at the toe and the power at the heel. It presents two longitudinal arches: a low, well braced less elastic external arch, which in many normal feet is no arch at all, and a high, ill-supported flexible inner arch. A transverse arch appears in the forefoot only during suspension. In the mid-tarsal region this is constant, but, since it has no internal abutment, has more the character of a flying buttress. Note further that the anterior pillar of the longitudinal arch, comprising the forefoot, is springy, made up of numerous small bones, and descends gradually to a broad expanded base. Its function is manifestly a balancing one. On the other hand the posterior pillar, or root of the foot, is short, made up of a few massive bones, and descends steeply. Manifestly its function is one of weight bearing. As a matter of fact, it has been determined that if a man weigh 150 pounds and stand in his bare feet, 106 pounds will be transmitted through his heels and only 44 pounds through the anterior portions of his feet. Of course, as the heel is artificially elevated, more and more weight is thrown on the forefoot.

So much for each foot taken separately: taken together they form a dome, the best braced structure known to architecture, and upon the apex of this dome is perched the body weight. If for any reason the feet roll inward, causing their outer edges to be elevated from the supporting surface, the body is no longer supported upon a dome, but upon two comparatively unstable arches.

Of the four principal motions of the foot, the up and down motions take place in the joint above the astragalus, while the side to side motions take place principally, though not wholly in the joint below the astragalus. Plantar flexion and supination tend to shorten the foot and to elevate the arch; dorsal flexion and pronation tend to elongate the foot and to depress the arch.

If, in place of this dried skeleton, I had a fresh specimen with cartilages intact, you would be able to see that, as John Dane has pointed out, in normal standing, first, a rotation outward of the leg occurs, while the internal malleolus travels inward

and a little downward; and second, that the upper surface of the astragalus does not look directly upward, but upward and outward. Thus it comes about that in the erect position the articulating surfaces of the ankle joint, instead of being in the same plane, are in different planes both horizontally and from before backward. That is, they are locked, and it is possible to stand erect without excessive muscular strain.

Now in the condition which we recognize as "pronated foot," the foot itself is the fixed portion, since it is applied to the floor, and actually an exaggerated rotation inward of the leg takes place; this tends to bring the articulating surfaces of astragalo-tibio-fibular articulation into the same plane from before backward at the same instant that the associated descent of the astragalus in its attempt to slide down inward off the back of the calcis, makes its upper surface approach the horizontal. In other words, **the act of pronation unlocks the ankle joint**, and the leg may be maintained erect upon the foot only by the constant exercise of positive muscular effort. To the consequent exhaustion and muscular irritability may be ascribed the subjective symptoms noted in ankle and leg. Again, in the knee the last act in full extension is a rotation backward of the internal condyle about the external condyle. Consequently the two articulating surfaces no longer lie in the same frontal plane and the joint is locked.

The effect of pronated foot on this mechanism is as disastrous as it was seen to be on the locking of the ankle. For the internal rotation which occurs in the tibia causes the upper articular surface of that bone to continue in the same frontal plane as that occupied by the lower end of the femur. Therefore the joint remains unlocked and the femur is maintained erect upon the tibia only by constant positive muscular effort. There may be a resultant fatigue and spasm of the muscles of the thigh. Particularly is this to be noted, as in one of the cases I reported to-night, as an extreme sensitiveness over the insertion of the internal hamstrings.

Lastly your attention is directed to the hip joint. You will note that the femoral neck is directed upward, inward and a little forward, so that the head shall enter the shallow cup of the acetabulum. The center of gravity of the body lies somewhere in a plane behind the frontal plane, joining the two femoral heads, and a rotation backward and downward of the trunk on the femora would be inevitable were it not for the vastly strong inverted Y ligaments against which the femoral heads impinge at the beginning of this motion. But the very fact that they do so impinge explains how it is possible for us to maintain the trunk erect upon the thigh without muscular strain. The influence of pronated foot upon the mechanism of the hip-joint is not less injurious than it was in the ankle and in the knee. In the effort to lock the knee-joint the normal inward rotation of the femur at the knee was exaggerated. The effect of this exaggerated motion at the hip-joint was first to relax the strain upon the insensitive Y ligament and to transfer to the muscles the task of maintaining the trunk erect upon the femora; and second, to separate abnormally the origins and insertions of the external rotators of the hip. When we stop to reflect upon the fact that the psoas-iliacus muscle not only holds erect the lumbar spine and attaches to the lesser trochanter, but that embedded in its substance is the lumbar plexus; and upon the further fact that an equally intimate relation exists between the external rotators and the points of emergence of the sacral nerves, nothing will seem more inevitable than that exhaustion and spasm of these muscles should set up sympathetic irritations of these nerve trunks which would manifest themselves as painful sensations referred to the organs of regions to which these nerves were distributed.

That such was the fact my case histories have indicated, and that the primary cause was pronated foot may be regarded as clinically proven, since when the static error was corrected the symptoms disappeared.



## SOME POINTS ON THE ETIOLOGY AND TREATMENT OF ENURESIS\*

By E. C. FLEISCHNER, M. D., San Francisco.

No one has seen many children suffering from enuresis without asking the question "why are the results of treatment so pre-eminently unsatisfactory?" The answer to this question is that enuresis is essentially not a clinical entity, but a clinical symptom. No one would endeavor to treat headache without attempting to discover its cause; likewise no one would endeavor to remove abdominal pain, without locating the responsible viscus. On the contrary, it is lamentable to note that belladonna or the bromides are usually prescribed in the treatment of enuresis without thought being given to the etiological factor. Unfortunately, many of the cases are purely neuroses, and as such, the cause can not be found, but on the other hand, many are intimately connected with some organic disturbance, and the treatment depends directly on its removal.

The textbooks, unfortunately, fail to call attention to many of the causes of enuresis, and most of them are content to say that if a child with enuresis has adenoids, remove the adenoids; if he has phimosis, circumcise him, and he will often be cured. It is perfectly plain that too little attention has been paid to the connecting link, between these apparently etiological factors, and the resulting condition. Some conditions of the nervous system must have considerable bearing, otherwise many more children with adenoids and phimosis would have urinary incontinence.

Given a child with malnutrition, or pronounced secondary anemia, the whole body is carefully examined to determine the cause of the condition. Given a child with enuresis, and usually only the prepuce and naso pharynx are examined. This explains why treatment so often fails.

What, then, should be the procedure in the examination of a child with incontinence of urine? Primarily, the urine should be examined, and this examination does not mean simply an albumen and sugar test with the ordinary microscopical examination; highly acid urine has often been credited with causing enuresis; but the cause of the high acidity usually remains concealed. The most frequent cause of high acidity of the urine is a colon bacillus infection, and bearing this in mind, no one is justified in treating enuresis without first culturing the urine. Twenty per cent of the cases of enuresis that presented themselves at the Cooper Medical College last year were caused by colon bacillus infections of the urinary tract.

Diabetes in children is often accompanied by enuresis, and this condition should always be thought of in treating a case.

The presence of calculi-polypi and tuberculosis in the bladder of children is not very common, and in eliciting the history, their occasional occurrence should prompt the question as to pain on urinating and hematuria.

It will be only necessary to briefly mention the importance of discovering the presence of abnormal

conditions in the external genitals of children suffering from enuresis. In this connection may be mentioned vulvitis and vaginitis in girls, and urethritis and balanitis in boys.

The rectum, when irritated, is frequently a cause of urinary incontinence in children. This is best exemplified by the frequent occurrence of enuresis in children suffering from oxyuris. A rectal polypus, or, rarely, a foreign body in the rectum, will keep up a persistent enuresis for months, which facts show the importance of examining the feces and rectums of these children. After a local examination of the genito-urinary and lower alimentary tract has been made and the urine and feces carefully investigated, then the condition of the central nervous system should be looked into. The following interesting case illustrates the importance of this procedure.

A child nine years old was brought into the clinic with a history of enuresis from birth. He had been circumcised without result. On examination, it was noted that there was a persistent priapism. There was no paralysis anywhere, no disturbance of the reflexes or sensory nerves, no history of injury was elicited, but the priapism suggested some spinal cord disturbance, and the examination of the back showed what looked like a fatty tumor over the sacrum. Palpation, likewise, gave the impression of a lipoma, but on further examination it was noted that at its base there was an opening, connected with the sacral canal. This was one of those rare cases of spina bifida occulta, with incontinence of urine and occasional incontinence of feces, but without other symptoms. He had been taken from clinic to clinic, needlessly circumcised, simply because the primary cause had not been discovered. The sudden development of enuresis in older children is suggestive of tabes dorsalis, or petit mal. W. Spitzmueller (*Medizinische Klinik*, Jan. 3, 1910), reports a case of tabes occurring in a boy of nine, in whom the first symptom was suddenly developing enuresis; and Marburg, of Vienna, has reported a series of such cases. The presence of the Argyll Robertson pupil and Romberg's phenomenon, with a loss of knee-jerk, will clear up this diagnosis. It is, however, much more difficult to diagnosticate petit mal until the typical attacks come on, but it should always be born in mind.

More carefully reviewing these etiological agents reveals two very interesting factors; first, that such causes usually develop after a child has passed the age when he should normally control urination; and second, that they take a large number of the cases of enuresis out of a strict classification of neurosis. *One very practical and important conclusion can be drawn from this, and that is, given a patient who has learned to control micturation at the proper age, the sudden development of enuresis should cause one to suspect some distinct pathological condition as an etiological factor.*

Granting that many cases of enuresis have definite causes, how is one to explain the innumerable cases in which the history is obtained that the child has not been able to control his urine since birth? Usually, it is described as a neurosis. That is only one of the many loopholes that medicine affords us for saying "we do not know."

\* Read at the Fortieth Annual Meeting of the State Society, Sacramento, April, 1910.

So much has been written, concerning the physiology of the thyroid gland that one hesitates in assuming that one of its many functions should consist in influencing the muscles that control micturition. Anything, however, that offers any hope of improving the condition of these unfortunate children, should be investigated, and this is the attitude that most men assumed when Williams reported his first cases in the *Lancet* May, 1909, in an article entitled "Adenoids, Nocturnal Enuresis and the Thyroid Gland." He reports twenty-five cases treated with thyroid extract, in some of which the results were brilliantly successful. His attention was first called to the possible bearing of the thyroid gland by a case in which the adenoids were removed to stop enuresis, but after which operation the enuresis was aggravated. He thought of the relation of the thyroid gland and lymphoid tissue and deduced that in the removal of the adenoid there had been a reduction of the thyroid secretion, and he decided to try the extract therapeutically. He used one-half grain of the extract twice daily and his result was very excellent. He then used it in a series of twenty-five cases, and of this number, seven were cured, four were lost track of, one failed completely, and thirteen had ameliorated, which were not under treatment long enough to draw conclusions from. He used from one-half grain twice daily, to two and one-half grains twice daily, watching for symptoms of hyperthyroidism, tachycardia, tremor, excessive perspiration, diarrhea, etc. Williams reports a case of malnutrition, after nephritis, to whom he gave thyroid in large doses; as a result of this, the boy got enuresis, and he concluded that too much thyroid, as well as too little, could cause this condition. To say the least, Williams' conclusions are not convincing. Primarily, if either lack of thyroid, or excessive thyroid is the cause of enuresis, why do we not observe the same condition in cases having undoubted disturbance of this gland; and secondly, his conclusions are drawn upon too little satisfactory evidence.

Nevertheless, with the object of determining the value of this treatment, which could be no worse than many others that had been tried, it was decided to use thyroid extract in the children's clinic at the Cooper Medical College in those cases in whom no etiological factor could be found after careful examination. Ten cases were treated as follows: One-quarter grain thyroid extract was given three times a day, increasing to one-half grain three times a day; in addition, two measures were prescribed that will be mentioned more in detail later. Fluids were not allowed after 4 P. M., and the foot of the bed was decidedly elevated at night. Of these ten cases, eight improved; but they have not been under observation long enough to draw any definite conclusions. Furthermore, the influence of the posture and dietetic treatment must not be overlooked. Two did not improve. Of the eight who improved, in four cases circumcision had been previously performed without result. The future alone will prove the efficacy of thyroid in these cases. It is planned during the next year to treat the cases of enuresis as follows: One case will be given thyroid alone. The second case will be treated posturally and dietetic-

ally, and the third case will be given tonic treatment; a further report will be made after more children have been examined. It seems reasonable to call attention to two points that may help to prevent these cases of enuresis in which the children never learn to control micturition. An adherent prepuce, doubtless, has some effect on the minds of very young babies, and may be able to keep up some reflex irritation, whereby urination remains involuntary, so that every obstetrician should make it a part of his duty to forcibly retract the prepuce on the fifth day after birth. Not only should he do this, but he should instruct the mother to do it at least twice a week, up to the time a boy is five years old. To say the least, it is conducive to cleanliness, and circumcision would be a rare operation if this were systematically done. In addition to this it seems reasonable to assume that if more attention were directed to training young infants to control the bladder, that enuresis would be much less prone to occur. Every one knows of children who, before they are one year of age, become properly trained. It is too often the practice to let children go on two or three years without training, with the assumption that when they know better, they will adjust themselves. This is a misconception, because the younger the child, the easier are habits formed, and this function must unquestionably come largely in the realm of habit.

It is not within the province of this paper to enter into the details of the treatment of all conditions that may cause enuresis, but considering the very delightful results that may be obtained in those cases of enuresis due to colon bacillus infection, it seems advisable to outline the treatment employed. The diet should be regulated to avoid irritating and stimulating foods. Fifteen to twenty-five grains of urotropin should be given during the course of twenty-four hours, well diluted in water. This will usually stop the enuresis, but to clear up the bacilluria, it is necessary to prepare an autogenous vaccine, and to give an injection of this every fourth day. The dose, at first, should be small, five to ten million, and increased as rapidly as possible up to fifty million, always giving less than a quantity that produces a marked reaction, as evidenced by rise in temperature, rapid pulse, headache, prostration, nausea, etc. The history of the following case is illustrative: H. C., girl seven years of age, was brought into the clinic suffering with enuresis of three years' standing. There was no pain on urination, no hematuria. The examination of the child was negative as regards heart, lungs and abdomen. Nervous system was normal. Feces contained no ova or parasites. External genitals irritated, but otherwise normal. Examinations of the urine showed it highly acid and cloudy. Microscopical examination revealed no pus. Culture on Agar gave a pure growth of colon bacilli. Patient was put upon urotropin, twenty grains daily, and the enuresis cleared up in four days. The bacilluria persisted, however.

Whether the use of thyroid extract is efficacious or not in the treatment of this very distressing condition, only the future can determine, but one thing has been definitely proven, and that is, that the



postural and dietetic treatment are of undoubted value; their action is, naturally, combined. Mothers are advised to give the children no fluid beyond a glass of milk for the evening meal, after four in the afternoon; then they are told to place blocks under the foot of the bed so that that part is raised about eight inches. The object of this is to keep the urine from coming down and irritating the neck of the bladder, and it is often very efficacious.

It is perfectly plain why the dietetic and postural treatment of enuresis should be of value; but to say the least, it is extremely difficult to see what influence the thyroid gland can have over micturition. A report coming from a man of Williams' integrity naturally warrants attention, and it is to be hoped that more experience will prove his deductions to have been well founded. It is to be earnestly desired that the coming year will see the thyroid therapy of enuresis given a very thorough trial, so that we may be able to reach a definite conclusion as to its value. Patients to whom this drug is given should be seen two or three times a week to be sure that no untoward effects are produced. Otherwise the treatment is simple, and if satisfactory, will certainly prove a boon in the therapy of a condition which until now has been very resistant to treatment.

#### Discussion.

Dr. Langley Porter, San Francisco: I have very little to add to this paper. The point of the communication which seems to me to be of particular value is the frequency of colon bacillus infections of the bladder and renal pelvis in children. I have nothing to add on the matter of treatment except this one practical fact, in treating an enuresis we very frequently experience that children have difficulty in urinating when taken up after going to bed. We have instructed the mothers to take these children up one hour after going to bed. It has developed that the child is taken from a warm bed and put on the cold floor, and this exposure to cold causes a reflex action and the child has to urinate again about an hour after being put back to bed. We always have these children kept in bed and given a bottle in which to urinate until such time as the condition of enuresis is remedied. With regard to the thyroid therapy it has not impressed us in the clinic and we do not expect any particular success with it, but we propose to try it for experimental purposes. Another point is that concentration of the urine is very frequently the cause of enuresis. Children are not given enough water to drink, they are given too much milk and too much sugar, meat, proteid and concentrated food in early childhood, and consequently the urine is concentrated.

Dr. W. F. Cheney, San Francisco: First of all I wish to confirm what Dr. Fleischner has said about determining the etiology of this trouble. These cases are so very common that we cannot have any routine and cannot give one plan of treatment suitable to all cases. It is absolutely foolish to plan treatment until investigation has been made as to the cause; but after having eliminated all known causes there remains the largest group of all, in which no cause is discernible. We must have some plan of treatment for this group. I will say nothing about the colon bacillus conditions, but the large group in which no tangible cause can be discovered. These cases are called a neurosis; but stating the thing a little more plainly, it is probably a hyperesthesia of the mucous membrane of the bladder. In this group of cases the plan of treatment that works most satisfactorily is first of all the limitation of fluids after four o'clock, so that the bladder will hold less fluid during the night. Secondly, the limitation of the diet at the evening meal to a small amount.

Also taking the children up after having been put to bed, has a good effect in the majority of cases. The old well tried belladonna remedy can also be given in the form of atropin and is a well established method in the treatment of these cases, and I have had excellent success with it.

Dr. E. C. Fleischner, San Francisco: In calling attention to the thyroid therapy I did so with the object of reporting our results in the clinic during the past year. I am not particularly sanguine over the results. I wish to call your attention to one point in the use of belladonna. It is preferable to give it in the form of suppositories, as it interferes very much less with the appetite and digestive system. The diversity of the treatment in this condition is great, and one hesitates to think that drugs have any great value. In Berlin these children are inverted and held up by the feet for a certain length of time each time they are brought to the clinics for the psychological effect. In the French clinics they have introduced cocain in the sacral cavity and later normal saline solution. The whole subject is important because the cases are so numerous and treated with such great difficulty. I feel that the training of these children will have more to do with the cure than any other single feature.

#### CRIMINAL ABORTION.\*

By J. HENRY BARBAT, M. D., San Francisco.

The desire to prevent conception or to get rid of the products of conception, is as old as mankind. I do not expect to be able to change the condition of affairs as it exists at present, but I do believe that a proper exposure of the methods of the criminal abortionists, and the adoption of laws to prevent them from flaunting their dastardly vocation in the face of the public, would result in saving the lives of a large number of innocent victims, and in preserving the chastity of numerous girls. The extent to which criminal abortion is practiced in the large cities is appalling, and a visit to any of the offices of the advertising abortionists shows them to be reaping a harvest of money by duping their victims or by actually killing the unborn babies.

I am sorry to have to say that the committing of abortion is not confined to the advertiser, but is the means of livelihood of some of the so-called respectable practitioners of medicine. I have even known reputable men to send patients to well known "respectable" abortionists, and subsequently finish the job by curetting the unfortunate patient.

Those who apply for abortions are from every walk of life, from the factory girl to the millionaire's daughter; from the laborer's wife to that of the banker, no class, no sect seems to be above the prevention of conception, or the destruction of the fetus. What has produced this awful state of affairs? How are we going to remedy it?

There are two reasons why men will produce criminal abortions; first for money and second to cover up their own sins, and we find that the thirst

\* Read before the Alameda County Medical Association, June 21st, 1910.

for gold is the prime cause for the existence of the criminal abortionist.

There are probably fully 50% of those who apply to the professional abortionist, who are not pregnant, but who have simply gone over a few days, usually through worry. These poor creatures are meat for the abortionist, and he has no trouble in restoring the menses and collecting his fee. When a true pregnancy is present, various means are adopted to cause the destruction of the fetus; for instance, one inserts a capsule containing some irritant into the cervix, another passes a catheter into the uterus and leaves it there, another forces a piece of cord which is stiffened by means of varnish into the uterus, and more recently some of the bold-er ones are emptying the uterus surgically.

Two of the latter have elaborate operating-rooms connected with their establishments, and do not hesitate to dilate the cervix and empty the uterus with a curette. They both learned their lesson in the school of experience, at the cost of many lives of their unfortunate clients. After having lost patients by their former cruder methods and almost paid the penalty with their own lives, they cast about to discover a safer and surer method of accomplishing results, and now show their clients how they sterilize their instruments and do their work; but in spite of this they still have a mortality list which is usually due to their gross ignorance of the fundamental laws of asepsis and surgery.

Why do women wish to destroy the products of conception? 1st, to hide the result of their illicit intercourse; 2nd, to avoid the trouble of raising children; 3rd, to save the cost of providing for their offspring; 4th, on account of the difficulty of finding suitable houses to live in when burdened with small babies.

We can of course understand the horrible feelings which must come over a young girl when she has been foolish enough to yield to the blandishments of some conscienceless individual, and subsequently finds that she is pregnant; but might she not have withstood the temptation had she known that no relief could be afforded in case she did conceive?

Many young couples start out with the idea that they do not wish to be burdened with a family for the first few years, and therefore seek the services of the abortionist if the wife happens to go over her period for even a few days. They have not been taught that they are ruining their future health and happiness, and that when *they* are ready to have children, it is too late, they have spoiled the combination, and conception is almost impossible. Not only has their happiness been marred, but their nervous systems wrecked. There is nothing so wearing on the nerves as improperly performed intercourse, and the couple who are fearing conception with every act, are destroying their nerves and missing much pleasure. These people need to be properly educated, and will usually take advice if the whole matter is correctly explained to them.

Many people claim that they can not afford to have children. In some cases this may be partially true, but in the majority of cases these people feel that they would have to deprive themselves of some

of the luxuries of living if they had to spend some of their money on the young ones. It is a purely selfish matter and we can rarely make these folks change their views.

A few women fear the repetition of a very difficult labor, or have been told by their accoucheur that the next baby would undoubtedly kill them. A little modern teaching usually gets these people to view the matter in the proper light.

A large number of owners of flats and apartment houses refuse to rent to families having small children, on account of the noise and damage to the walls and woodwork of their houses. This matter has been taken up by legislators in some districts and something will probably be done to prevent this most arbitrary ruling against the fortunate possessor of children, and in favor of the professional abortionist.

What means can we adopt to limit this slaughter of the innocents? First by educating the public along proper lines. Show them that the happiest people in the world are those who have large families. The consolation and happiness which is derived from a family of good children transcends all other earthly pleasures. Let me warn those who propose to stop after the first child is born, that they may be laying up stores of misery for themselves in after years. I have repeatedly seen the only child, after arriving at the age of 16 or 18 years, taken from its parents, leaving their remaining years blighted without a possible hope of having any further progeny. What a different picture is presented when there are several children remaining to comfort the parents in their old age.

I will now speak of the second and most important method of suppressing the illicit traffic in human lives. We have succeeded in causing the removal of a large number of advertisements of abortionists from the columns of our daily press, through the agency of the Post Office Department. Without advertisement the professional abortionist can not do much business, and if their income can be sufficiently crippled, some of them will seek more honorable means of making a livelihood, and a corresponding number of babies saved to the world.

The method which we pursued was one recommended by Dr. Rudolph Holmes of Chicago, and is as follows: a couple of female detectives are employed to visit the various advertising abortionists, and get them to consent to perform an abortion. An affidavit is then made and sent to the Post Office inspector who then sends a stop order to each of the newspapers in which the "ad" appeared, informing them that the papers would be refused the mails if the objectionable "ads" were not removed. This was usually effective, but like all criminals the child murderer soon found means to circumvent this order, and in a few weeks we found that Dr. G. W. O'Donnell became Dr. G. W. Olcot, and when we caught him under his new name, he further changed it to Dr. Moore. Dr. Neal became Dr. Page, then Dr. Meal, then Dr. Kaner, then Dr. Gibson. This course necessitated getting new affidavits each time, but we must not expect to clean up the criminal element in any community with one application of the remedy, and it is only by constant vigilance that we can hope to rid the country of these pests.



## REPORT OF OPHTHALMOLOGICAL CASES.\*

By F. A. HAMLIN, M. D., San Francisco.

## Convergent Squint.

Case 1. This case has been selected for presentation chiefly on account of the age of the child.

Convergent Strabismus is usually first observed in a child at about the age of 4-6 years, being the age when accommodation is first put to more active test, and by the mother is often referred to some acute infection just preceding, as the causative factor. Among the causes of squint may be mentioned: 1. Disturbance of relation between accommodation and convergence by errors of refraction. 2. Disparity in length, thickness, or tension of opposing muscles. 3. Size and shape of eyeball and orbit. 4. Influence of angle gamma. 5. Amblyopia of one eye.

Treatment of Convergent Concomitant Squint may be briefly outlined under three headings. 1. Spectacles. 2. Orthoptic training, i. e., the child must see double or be trained to see double and then taught to fuse the double images (this necessitates much time, care and detail).

3. Operative methods. 1. Tenotomy of the Internal Rectus, or 2. Advancement of the External Rectus, or 3. Both.

I will here mention only the first.

Spectacle Treatment. This should include in children, atropin mydriasis with observation and measurement of eyes while the accommodation is paralyzed and pupils large. This will mean Retinoscopy with measure also of corneal astigmatism. Generally, we find hypermetropia, and often considerable astigmatism; therefore, if either of the other methods of treatment is adopted, we may still be obliged to prescribe spectacles.

Prognosis. "Glasses alone will many times suffice to cure," says De Schweinitz. Long and Barret, reporting 102 cases of convergent Strabismus which had worn glasses from six to twenty-four years, conclude that glasses cure 10% quickly and completely; 33% are cured if they continue to wear spectacles.

Age to prescribe Glasses:

Text books when mentioning any age usually say "give glasses to child 5-6 years old or over." De Schweinitz says "as soon as safe to wear." I think we all agree that if a child can be made to wear and look through the lenses, the effect will vary directly as the age of the patient. This little girl came to us four months ago when hardly 17 months' old. We found a convergent Strabismus of O.S. 20 degrees with some tendency to alternation. Retinoscopy showed hypermetropia of 2.5D. with an astigmatism of  $\pm 0.5D.$  axis vertical. We prescribed lenses of  $\pm 2.0$ , asking the optician to take especial care in adoption of frames.

The child has worn the spectacles constantly, neither frames nor lenses have been broken and now you can see that the eyes are perfectly straight.

Case 2. This case is presented for three reasons, viz:

1. Its treatment. 2. Because it represents a type which goes to make up a large percentage of our clinical material. 3. Because it is of interest to other departments as these cases have often been to the Children's Clinic, Skin Clinic, and Throat Clinic.

Shall we hastily review some of the chief points concerning phlyctenular ophthalmia or scrofula ophthalmia or phlyctenular conjunctivitis and keratitis.

This is characterized by a circumscribed inflamma-

tion accompanied by formation of one or more small reddened projections or "phlyctenulae." These latter are accumulations of lymphoid cells which soften at their apices and form small ulcers.

Age: Children and youths are especially susceptible though it may occur in adults. A single large phlyctenule in adult gives local appearance of episele-ritis.

Subjective Symptoms: The two chief subjective symptoms are photophobia and blepharospasm.

Objective Symptoms: We see one or more small nodules, size of millet seed, reddish and on conjunctiva or cornea or at limbus. This phlyctenulae is surrounded by conjunctival hyperemia but non-affected parts of ocular conjunctiva are fairly normal. When on the cornea the ulcer resulting may be superficial and heal and leave no changes in the cornea or may spread into corneal substance and leave permanent opacity or may even perforate. There is usually considerable lachrimation but no secretion. If there is any discharge it is mucous or mucopurulent.

Course: The phlyctenulae appear in crops,—each crop lasting from five to fifteen days. Relapses are common.

Complications: This trouble is often accompanied by blepharitis; excoriations and exzema of the lids and face, and nares and swelling of the cervical lymph glands. Rhinitis is always present.

Etiology: It is found especially among those who suffer from strumous, scrofulous or tubercular diathesis. The lower classes suffer most, as here, dirt, poor food, bad hygiene, etc., are contributing factors. At times it is seen in children of apparently good health and of the better classes. Micro organisms have been described but inoculations were negative. One of these resembled "cocci flavus desidens." Astigmatism some authors consider an important factor.

Treatment: Proper diet, plenty of air and sunshine. Hydrotherapy, cold bath and plunge for the face.

Tonics: e. g., iron, quinin and cod liver oil.

Locally: Yellow oxide or calomel. Caution if necessary to control the ulcers.

Two points I would emphasize:

1. Allow no bandage or cover of any kind.
2. Treat the nasal condition, with yellow oxide.

This little Chinese girl came to clinic with a severe eczema of the right side of the face and lip and right nares. The lip was very much swollen and the right eye showed several typical phlyctenulae in various stages. The nasal and lip condition was especially noticeable, being so distinctly unilateral and so severe. During the treatment the other eye and left nares showed only very slight disturbance.

Treatment above, as outlined, was followed with immediate improvement and you see the child now nearly well. The eye condition cleared and the nasal and face trouble scarcely noticeable. While under our care tests were made for luetic or tubercular conditions, but both the Wasserman and Moro reactions were negative. The child has gained in weight and I am sure that those who may have seen her in other clinics will note a very remarkable change,—in fact she is a very different child in appearance.

Case 3. The pelvis of this kidney as you see is literally filled with a calculus. The patient, age 40, laborer, came to us complaining of failing vision. Gave no history of kidney trouble except had "passed gravel a few times." The fundus showed the classical picture of albuminuric retinitis with numerous small hemorrhages. Patient felt very well with the exception of headaches but asked only to have the vision improved and he would be satisfied. The patient was persuaded, with great difficulty, to enter the hospital. The post mortem was made ten days later. I present the specimen to show how severe and long standing a kidney lesion may be before noticed.

\* Read before Cooper College Science Club, February, 1910.

## THE VALUE OF REST IN THE TREATMENT OF PULMONARY TUBERCULOSIS.\*

By ROBERT A. PEERS, M. D., Colfax.

The marked changes that have been made during the past two decades in the treatment of tuberculosis is in no way better illustrated than in the shifting of position in the attitude of the members of the medical profession regarding the value of rest in this disease. We can all remember the period when, with the knowledge of the advantages of outdoor living, came the advice to tuberculous patients to exercise. The favorite prescription was: "Go out in the hills, among the pine trees, walk ten or twelve miles a day, and rough it"; and this to patients who frequently were suffering from a high fever. But gradually the profession, or rather those who saw many of these patients, discovered that, while nature aided many to recover in spite of this "roughing," more were made worse. Even more gradually it dawned upon them that what the majority of these patients needed was the reverse of "roughing it"—rest, frequently absolute rest. To-day, were you to ask the men who are treating tuberculosis exclusively what they considered the most important aid in the cure of that disease, I think a majority would answer, not fresh air, nor climate, nor forced feeding, nor tuberculin, but rest.

For many years there seemed to be an impression, which to-day is dying hard, that the fever of the tuberculous patient was entirely different from the fever of typhoid, or other febrile diseases, in that it was not necessary for a patient with fever due to the absorption of the toxins elaborated by the tubercle bacillus to go to bed, while the fever due to the absorption of the toxins of the *b. typhosus* should be treated by absolute rest of body and mind. Thus we observed the anomaly of a physician keeping his typhoid patient in bed until ten days after the evening temperature had become normal, while advising his tuberculous patient, with a temperature of 102° to 103°, to go out and rough it; or at the best to be quiet in the afternoon when the temperature was highest, an error of which the most of us have been, in times past, guilty.

This also was the time when the patient with a tuberculous joint was given rational treatment with rest, by means of an immobile splint, while the patient with an acute pulmonary tuberculosis was ordered the opposite of rest,—pulmonary gymnastics, either by means of certain breathing exercises, or by the increased respiratory efforts resulting from mountain climbing.

To better appreciate the value of rest as a therapeutic measure, it would be well to consider briefly the main predisposing factor in the causation of tuberculosis, and the resulting conditions following the neglect of this most important aid to treatment. In the first place you have doubtless noticed that it is not the indolent individual, who shirks the responsibilities of life; it is not those who are stigmatized by the inelegant, though expressive, term of "dead ones" who fall a prey to the tubercle bacillus. The ranks of the tuberculous are recruited from the great army of overworked; from the men who allow their ambitions or their necessities to drive them to overexertion, with an insufficient time for needed rest; from the women worn out by childbearing and household cares; from the young men and women who spend the time after working hours in dissipation or pleasure. Too much work, too much play, or a combination of both, exhaust the body cells and reduce the resisting forces of the organism to a point which allows them to succumb to the attacks of the tubercle bacillus. In short, this is a disease caused by the tubercle bacillus in a body too worn out by lack of sufficient rest to allow recuperation of the exhausted cells. Heretofore, too much stress has been laid upon lack of fresh air, in the home, the workroom, and office, in the causation of tuberculosis. It has been shown that laborers engaged in outdoor work succumb more quickly to this disease when overworked than when engaged in lighter work indoors.

Next, let us consider the subject from the other standpoint; viz., the deleterious effects of exercise on the individual suffering from the effects of an active tuberculosis. In the first place, the tubercle bacillus can be present in the human body without causing its host, per se, the slightest injury. It is not the tubercle bacillus, but the poisons elaborated by it, which cause the syndrome known as tuberculosis. It is the absorption, and dissemination throughout the human organism, of these poisons which causes the wasting, the fever, the rapid pulse, the malaise, the anorexia, and the various other symptoms which are the visible manifestations of the invisible existence of this germ.

Before speaking of the evil effects of exercise, by causing an increase of all these symptoms, while rest produces a favorable effect in the opposite direction, I wish to state clearly that I believe heartily in the beneficial effects of exercise, under the guidance of a physician, in arrested cases with subsidence of the acute symptoms which indicate a progressive disease. I am speaking now of the cases which come to us every day, where the disease is not arrested and acute symptoms are present. Let us consider the effect of exercise on these symptoms.

\* Read at the Fortieth Annual Meeting of the State Society, Sacramento, April, 1910.



There is wasting. The causes of this are several, all due directly or indirectly to toxin absorption. First, there is loss of flesh due to the destruction of body cells by the direct action of the toxins on these cells. Secondly, there is waste of tissue due to the increased metabolism as a result of the increased temperature. Third, there is loss of weight because of lessened ingestion of food due to lack of appetite. Fourth, there is imperfect assimilation of food because of the impairment of the digestive tract. And lastly, there is loss of weight from muscular movement incident to exercise. The loss of weight from the first four causes can be influenced only indirectly by rest, by the lessened absorption of toxins due to the quieting of the circulatory activity. The last named factor, the loss from muscular movement, can be controlled directly. For all practical purposes it may be accepted that the loss from this source will be in proportion to the amount of muscle movement: therefore, the amount of saving of tissue will be the greatest where the control of the patient's movements approaches most nearly a condition of absolute rest.

The pyrexia of tuberculosis is due to two factors. First, there is the effect upon the centers, which govern heat control, by the toxins. Second, there is the influence upon these centers by the presence in the body of the products of increased destruction of tissue. This is aided by imperfect action of the excretory organs. Rest favorably influences the temperature by lessening the amount of toxin absorption and of tissue destruction.

The increased pulse so characteristic of this disease is due to a combination of toxemia, increased temperature, and the muscular weakness which is general with the entire musculature of the body. It must be obvious to everyone the necessity of rest for an organ of such prime importance as the heart.

It would seem unnecessary at this time, when the subject of tuberculosis is so thoroughly discussed, to make the statement that tuberculous patients with a temperature of  $100^{\circ}$  and over should be put to bed and required to stay in bed until the afternoon temperature falls below  $99^{\circ}$ , but daily experience in meeting patients with a temperature of  $102^{\circ}$  to  $103^{\circ}$  and higher, who have never been told to go to bed, shows that the necessity for such a procedure is not so generally appreciated as it should be. My practice, which is the one pretty universally followed at sanatoria, is to require each patient to take his temperature, or to have it taken by an attendant, at least every three hours and when the thermometer registers  $99.6^{\circ}$  to remove all clothing and go to bed for the remainder of the day. If the temperature reaches  $100^{\circ}$ , the patient must stay in bed the succeeding day, even if the temperature does not exceed normal on the second day. If the temperature is  $99^{\circ}$  when taken at 7 a. m., the patient stays in bed all day. Any increase of symptoms, even without a rise of temperature, is a signal to rest—in a chair, if the increase is slight, in bed, if greater. To anyone who has not followed this

plan, the rapid amelioration of symptoms, as shown by the lessened cough, increased appetite, disappearance of night sweats, drop in temperature, and change in facial expression, is little short of marvelous. The good results are so apparent that patients are not required to be sent to bed when an exacerbation occurs, but go voluntarily—knowing from experience the benefits derived.

To follow the plan here outlined requires in some cases the utmost faith in its value by the physician, and as great faith in the physician by the patient. On two occasions I have kept patients in bed for more than five months, not allowing them up for meals, and at times not allowing them the opportunity of writing letters, and at other times even restricting the amount of reading to a certain definite length of time for each twenty-four hours; with the pleasure at the end of that time of seeing their temperatures drop to normal with a corresponding improvement in all the other symptoms. These, of course, are extreme cases, and where two months in bed does not bring about improvement, the chances are that none will be made. Where the result is to be satisfactory it will usually be shown by a fall in temperature in the first month. And among all other signs of improvement the permanent lowering of temperature is, I think, the most important.

For patients constantly running a high temperature not only must there be as nearly absolute physical rest as possible but also mental rest. Frequently all reading must be prohibited, letter writing forbidden, and all unnecessary conversation or visits disallowed.

When the patient's temperature admits his being up, his rest may be taken in a reclining chair, with the proviso that he lie down, before and after each meal, for from one-half an hour to an hour, if he is allowed light exercise. He is also instructed to take his temperature regularly and to go to bed at once should a rise of temperature, or other increase of symptoms, occur.

It is hardly necessary to insist upon the most complete rest in case of blood spitting or hemorrhage. It is merely mentioned with the statement that no other measure is so effective as rest, in case of the occurrence of these complications.

Finally, when the patient is discharged, he should be given the most thorough instructions as to rest. A great proportion of the apparently cured cases that relapse is due to the ignorance, or underestimation, of the great importance of following out these principles at home after leaving an institution. Patients who can work only half the time should be taught to rest the other half. They should know that for many months and even years they can not work and play too—that the hours not spent in working should be given up to rest instead of parties, dancing, and games. This may be considered a misfortune but it is not so great a misfortune as to relapse from the ranks of the breadwinners to the ranks of the dependents. And, after all the chief end in view, and the best test of the successful treatment of tuberculosis, is the production of breadwinners from the tuberculous who come into our hands dependents.

## A CASE OF PRIMARY CARCINOMA OF BRONCHUS IN THE MEDIASTINUM.\*

By H. R. OLIVER, M. D., San Francisco.

Mr. P. D., age 42. Mass. Albino. Previous health good. Family history good. No venereal history. In February, 1908, patient complained of pain in the right apex. He was somewhat weak. One week later developed a temperature of 101.6. A physician made diagnosis of pneumonia. Patient was confined to the house for two weeks; temperature was never over 102; right apex dull to percussion. Patient did not regain strength and diagnosis of tuberculosis of lungs was made. Sputum examined by myself several times, during a period of three months, failed to reveal tubercle bacilli. The sputum was of a serous nature and had a slight streak of bright blood.

Patient then went to the southern part of the state for two months, failed to gain strength and came home. While south a physician claimed to have found tubercle bacilli once. On his return I again examined sputum several times with same findings as previously stated. Rather suddenly patient became markedly dyspnoeic and could only rest in upright position. A diagnosis of cardiac failure was made. I then saw the patient for the first time and found markedly dyspnoeic and cyanotic. On examination the heart sounds and pulse were normal, the right side was bulging and the pleura contained fluid to the fourth rib. Aspiration showed a clear straw colored fluid, high in specific gravity, rich in albumin but containing few pus cells; the polymorphonuclears in excess, and no blood present. Two liters were withdrawn; patient much relieved but complained of pain between scapulae at lower angles. Percussion of chest showed right side flat, left emphysematous. After withdrawal of the fluid some breath sounds feebly heard at base of lung (probably transmitted from emphysematous left lung). He got stronger but developed an extensive edema of the right side of the face, neck and forearm. A diagnosis of mediastinal tumor was then made. This edema then extended to the left side of face and arm. The veins of both sides of chest were distended to size of lead pencils, and anastomosis with epigastrics caused these to also become swollen. There was little or no swelling of the lower limbs, no albumin or casts in the urine. This condition continued for several days, patient suffering great pain, especially in upper dorsal region. He became rapidly worse and pleura in both sides filled up with fluid, and then a remarkable change took place: the edema of the face and arms on both sides subsided to normal. Edema of lungs of inflammatory nature caused death three days later. The temperature was never over 100 during the whole period.

A post mortem was held. Heart was found to be normal in size and texture, valves normal. Both pleura filled with straw and bloody colored fluid. A large mediastinal tumor was found incorporating all the structures of the mediastinum and right lung, extending into the right apex and down the pleura to and along the diaphragm. The tumor which was sectioned was found to be a carcinoma, arising from the mucous membrane of bronchus at the bifurcation. There it was the size of a half dollar, edges elevated and center ulcerated. This extended down the bronchi on the right side and to the second bifurcation completely obliterated them. Then small masses were scattered throughout the contracted and pus-filled lung. The left side showed none, the peri-bronchial lymph glands showed metastases. The superior vena cava was surrounded and pressed on while the inferior was not interfered with. The liver was cyanotic and atrophic, the kidneys and spleen were normal but showed marked passive congestion.

Conclusions: The fact that the sputum was of a serous nature and blood streaked was most likely due to transudation and the blood due to the ulceration

of the primary tumor. The pain in the back was the typical mediastinal pressure pain. But the interesting phenomena of the great edema occurring after aspiration and then disappearing, on refilling, can be explained by the fact that while the fluid floated or held up the heavy, infiltrated mass of lung and the lumen of superior vena cava remained open, and when withdrawn this mass fell downward, causing a bend in the vessels and occlusion, the edema resulting. Just before death, when the fluid returned, the lung was again floated or pressed upward and the vessels regained their continuity and circulation was reestablished and the edema disappeared. The histologic examination showed the carcinoma to have arisen from the bronchial epithelium.

## TWO CASE REPORTS BY M. L. EMERSON, M. D., MADE TO THE ALAMEDA COUNTY MEDICAL ASSOCIATION.

At the last meeting I presented a patient on whom I had operated for a pseudo-pancreatic cyst or a cyst of the omental bursa, removing from this lesser peritoneal cavity two quarts of dark, blood-stained fluid from a very much emaciated patient, who at some time probably suffered from a trauma of the pancreas.

Colic pain referred to the left hypochondrium and left shoulder, nausea, vomiting, steady enlargement of the abdomen and emaciation, were his chief symptoms. This tumor reached the abdominal wall between the stomach and colon in the left hypochondrium.

This evening I present to you a specimen of an acute hemorrhagic pancreas secured post mortem to-day, from a patient on whom I operated four days previously. I have purposely kept it on ice since its removal this afternoon, that you might observe the pathognomonic fat necrosis which has occurred in the fat of the omentum, falciform ligament, mesentery and throughout the substance of the pancreas itself.

The abdomen in this case contained considerable blood-stained fluid, the pancreatic area looked like a carcinomatous mass within the intestines, the fat necrosis was everywhere demonstrable—breaking through the gastrocolic omentum the nature of the lesion could be plainly recognized.

No stones or any cause of obstruction could be demonstrated in the pancreatic ducts. The hemorrhage, you will notice, is in the head of the gland, which part is somewhat enlarged.

## RAILWAY SURGEONS

### CRUSADE AGAINST THE ANOPHELE MOSQUITO.\*

By T. B. REARDAN, M. D., Oroville.

When Laveran, in 1882, discovered the parasites in the blood of those ill with malarial fevers, an opening wedge was driven, which has finally made clear the way for the control, and one might say, the elimination of such fevers in any given locality. Patrick Manson found the mosquito to be the host of the parasite, and Sir Ronald Ross that it inoculated the human through its bite.

The first scientific demonstration of protection was carried out in the swamps of Rome, where in mosquito-proof houses in a place where hardly any one was ever known to escape infection, the protected laborers were able to work and remain free of malarial fevers. Patrick Manson, to prove the findings, had an infected *Anophele* mosquito carried

\* Read at the Eighth Annual Meeting of the Pacific Association of Railway Surgeons, San Francisco, August, 1910.

\* Reported at Cooper College Science Club.



from these same swamps to the heart of London, which he allowed to bite his son, who became inoculated and developed the typical form of Tertian malarial fever.

How different is this positive knowledge from the theories of twenty-five, twenty and fifteen years ago, when malarial fever was supposed to be due to the inhaling of a miasma arising from the ground in the cool of the evening or the early morning hours. In an old standard authority of my student days I found these words on malaria:

"No chemist has yet been able to demonstrate the existence of malaria. We assume its existence from certain observed effects on the organism. just as we do in the case of other poisons which produce certain specific diseases. Malaria is believed to be the produce of organic decomposition in soils, whatever may happen to be their mineral composition; water is indispensable to the process, and a high temperature although not absolutely necessary, greatly aids it. It is generated in greatest abundance in marshes which contain a high percentage of organic matter, hence the name by which it is familiarly known, Marsh Miasm."

The older authorities while not knowing the role played by the mosquito yet gave practically the same advice given to-day for protection, and noted the disappearance of malarial fever from localities after swamps had been drained and sub-soil drainage instituted.

In 1898 Patrick Manson, summing up the status of preventive measures prior to the proving of the mosquito theory, wrote as follows, as extracted from an article written by Dr. W. F. Snow: "Malaria, the Minotaur of California. Experience has shown that much can be done to free a locality of malaria. Drainage and cultivation is desirable when the land will repay the expenditure, permanent and complete flooding when it will not. The inhabitants of malarious districts ought to live in villages and towns, with well paved streets and courts, going out to cultivate their fields during the day, but returning to sleep in the town before nightfall. Houses should be placed on high and dry situations. It is unwise to have flower beds, or vegetable gardens near bedroom windows, or to allow water from bathrooms and cookhouses to flow over the ground in the vicinity of the house, or to keep water unchanged in tubs, or water butts, for mosquitoes to breed in. Pools and puddles of stagnant water should be filled up and turfed. The neighborhood of swamps is to be avoided. There are many simple precautions of this sort which will occur to every prudent man and which in malarious countries he should take care to have carried out."

Almost all are now familiar with the brilliant results obtained by Col. Gorgas in the Panama canal zone, owing to his scientific sanitary precautions and the protective care accorded the employees, which has been the prime factor in the successful carrying forward of the great canal. DeLesseps and his engineers were able men, but unfortunately for them the prophylaxis of malarial and yellow fever, was not known at that time, the result being that they could not bring in a sufficient number of well laborers to take the place of

those taken ill, while now the death roll hardly equals that of many of our large cities.

The public, always suspicious of any great advancement, even when for its own best interest, as witness the still persistent attack against vaccination, have, thanks to quite a number of well-written magazine articles in the past few years, at last awakened to the knowledge that their lives can be made more comfortable and vast sums of money saved and earned as represented by the fewer number of hours lost from malarial fevers, if proper means be taken to destroy the anopheles mosquito.

In the early summer, Oroville, through the ladies of the Monday Club, acting under the stimulus of its energetic president, Mrs. Harry Klugel, invited Prof. W. B. Herms, of the State University, to deliver a lecture on mosquitoes.

On an evening in May Prof. Herms, to an audience that filled the courtroom, explained the life history of the mosquito, confining his remarks principally to the culex and the anopheles, explaining by charts their characteristics, and how they could be distinguished one from the other in both their embryonic and adult stages, and that so far as is known positively, the anopheles alone is the malarial bearing pest; how with proper protection against its bite and the destruction of its breeding places malarial fever could be entirely suppressed in the city. That evening after the lecture a collection was taken up which formed the nucleus of the sum necessary to carry out Prof. Herms' suggestions. A few weeks later a tag-day was selected on which the ladies collected \$480. The different gold dredging companies, controlling twenty-two boats, pledged \$25 for each boat. Each dredge master was made a supervisor for the district adjoining his boat, and every ten days has attended to the spreading of oil on all pools of water in his vicinity. Prof. Herms himself went over the whole field, marking with a red flag all mosquito-breeding places; his assistant then either had them drained when possible or oil poured over the surface. This work has been regularly carried on for over three months. Mr. B. Bairos, Prof. Herms' assistant, delivered several lectures to the school children, explaining the necessity of keeping their respective premises free of all water-holding articles. He showed them the mosquito wigglers, and pointed out to them the distinguishing characteristics between the two varieties of mosquitoes, so that hundreds of the children have become destroyers of mosquito-breeding places.

While it is an open question whether there is any less malaria here than in former years, there is no question but that there are very many less mosquitoes, and the residents have been freer from annoyance from the pests than for many years past.

Oroville has made a good, earnest crusade against the malarial-bearing pest this year and as it is the firm determination of its citizens to continue the fight from year to year, she will in a few years rid herself of her unfortunate reputation of being the hotbed of malarial fevers, though no more entitled to such title than many another city in the Sacramento and San Joaquin valleys.

## HOOKWORM DISEASE AMONGST MEXICAN TRACK LABORERS.\*

By JOHN W. COLBERT, Albuquerque, N. M.

Our "late unpleasantness with Spain" brought the subject of hookworm disease to the attention of the medical profession in this country—first, through the extensive work of Ashford and King in Porto Rico, and then the investigations of Stiles demonstrated the presence of the disease in our own Southern States. I believe it was Herbert Gunn of this city who first demonstrated its presence in California. And to-day, the hookworm problem is confronting almost every country of tropical and sub-tropical climes, and isolated cases are being found in almost every section of the United States—more especially in our Southern States, where it constitutes a true medico-social problem. It may be of interest to the Railway Surgeons of the Pacific Coast to know that in "our sister Republic" adjoining us on the South are many endemic foci of the hookworm disease, and also that our Mexican track laborers are bringing the disease across the border and along the lines of our railroads in California, Arizona and New Mexico.

It was my privilege to make an extensive study of this disease in Porto Rico during the early days of the "campaign of eradication" there. In two years' time I personally treated ten thousand cases; my report on this work has already been presented to the medical profession. During my three years in railroad work I have had eighteen cases sent to me from New Mexico, Arizona, and California, for hospital care, from various surgeons of the Santa Fe Coast lines, and in no case had a diagnosis of hookworm disease been made. The patients were all sent to me with such diagnosis as "rheumatism," "malaria," "nephritis," "heart trouble," "indigestion," etc.

With the amount of literature, both lay and medical, published during the past few years on this subject, it is a lamentable fact that but few physicians, outside of the Southern States, are to-day acquainted with the condition—and it is quite apparent, from my experience, that this lack of information extends even to railway surgeons.

Hookworm disease is a specific infectious disease due to infection by the *uncinaria duodenalis*, or *uncinaria americana*, and *ankylostoma duodenale*, and is characterized by progressive anemia, general reduction in strength, various nervous and gastric disturbances, and in severe cases hypertrophy of the heart, with hemic murmurs; anasarca, and often marked ascites.

The parasite has been so well described by Stiles, zoologist of the U. S. Public Health and Marine Hospital Service, as to require only a passing reference in this paper. The American species, as found in Porto Rico and the Southern States, differs somewhat from the Old World parasite as seen in the cases from Mexico—i. e., the cases we are apt to see amongst our Mexican track laborers. The chief difference lies in the nature of the buccal armature, and also in the size of the ova. The Old World parasite has a heavily armed mouth bearing two pairs of ventral teeth, and one pair of dorsal teeth, while the American variety, instead of the two pairs of ventral teeth, has a pair of ventral semi-lunar plates or lips, and a pair of dorsal plates. The ova of the American parasite is slightly larger than the Old World specimen. The worm is seen in the feces and is about half an inch long, resembling a bit of white thread. It lives in the upper part of the small intestines, being fastened between the folds of the mucous membrane by its head; the oral capsule, like a cupping-glass, draws a piece of mucous membrane into its cavity and fixes it with its teeth. Stiles, and others, have considered the parasite a blood-sucker, but our investigations in Porto Rico proved this assertion erroneous. A toxin is produced by the parasite, and this toxin is the true cause of the anemia, headache, dizziness and gastric disturbances. The average Mexican track laborer presenting himself with hookworm infection will harbor about 250 or 300 female worms, and this number of worms will produce about one million ova every twenty-four hours. These ova are deposited high up in the intestinal canal, and so become evenly mixed with the fecal mass. The ovum cannot develop to maturity in the intestine, but when the feces are deposited upon earth in a shady moist place and exposed to a relatively high temperature (80° to 90° F.) the ova hatch out in twenty-four hours. Each ovum produces a single lava only, and this, it is to be remembered, never takes place within the host, but outside, which explains why an increase of adult worms in any particular case is impossible without reinfection from without. This fact has a very important bearing upon the hookworm problem amongst our Mexican track laborers, as it explains why the disease spreads only to a limited extent when brought into this section of the country from Mexico. Owing to the change in the sanitary life of the newly arrived Mexican laborer, further infection is only a rare incident. It also explains why many of the cases gradually get better, even though their disease is not diagnosed or specifically treated. Multiple infections are cut off, and the

\* Read at the Eighth Annual Meeting of the Pacific Association of Railway Surgeons, San Francisco, August, 1910.



parasites brought into this country die as they reach the limit of their natural existence.

How does infection by the *uncinaria* take place? The investigations in Porto Rico proved beyond a doubt that there is but one mode of infection, and that is through penetration of the skin by the larvae. All other modes of infection are mere accidents, and are too rare to be considered. The disease is primarily a filth disease. The only way of infecting the soil is by emptying the bowel where the eggs in the feces will later develop. Earth soiling is common in the home country amongst the class of Mexicans obtained for track work, and as the majority of them go barefooted in their home land, their infection is readily understood. After the ova has been exposed to a relatively high temperature for twenty-four hours it is hatched, and the young worm sheds its skin twice and is then ready to infect man. It gains its entrance into the skin of the barefooted "peon," and makes its way, probably through the circulatory system, to its place of election in the small intestines. A dermatitis usually between the toes (where the infected soil has been squeezed in) is the first sign of infection by *uncinariasis*. This is the so-called "ground itch," or more properly known as "uncinarial dermatitis."

The symptomatology of this disease is so varied, and as my time is limited, I wish only to mention the prominent symptoms of a typical case—such a case as we are apt to meet with amongst our Mexican track laborers. There should be no trouble in diagnosing marked infections from the clinical symptoms alone. The pallor, a dirty yellowish or muddy color, is characteristic; the conjunctiva and mucous membrane of the mouth, and beneath finger-nails, are the best guides. Digestive disturbances are always present, usually pain in the epigastrium and marked increase in the appetite. Dizziness and tinnitus aurium, and general weakness are always complained of, especially weakness referred to the knees. There are apt to be pains in the chest and bones, often palpitation, and perhaps hemic murmur; stupor and lack of memory are pronounced symptoms in the majority of cases. The pulse is usually found to be rapid, weak and compressible, and pulsations of the vessels of the neck is noticeable. Early cases often show a slight rise in temperature, irregular in appearance and duration. In the light cases it is not best to rely upon clinical symptoms for diagnosis. The only reliable method is by microscopical examination of the feces. In general, I would say to you railway surgeons, whenever a Mexican track laborer, recently arrived from Mexico, presents himself for treatment and your diagnosis is not perfectly clear, a stool examination should be made.

My method of examining for the ova is as follows:

First—Mix about one-half ounce of feces in a pint of water, and allow this to stand for about five minutes, which permits the ova to sink to the bottom.

Second—Pour off the liquid, allowing about one ounce to remain in the bottom of the glass.

Third—Wash the sediment two or three times.

Fourth—Strain through cheese-cloth.

Fifth—Allow settling for five minutes; then draw up small amount from bottom of glass with medicine-dropper. A drop is placed on slide, and covered and examined under a two-thirds inch objective.

This is the most reliable method and shows the greatest number of ova. The ova are easily recognized. They are of an oval shape averaging 50 microns by 40, and provided with a very thin, simply outlined shell which is divided from the grayish yolk by a zone of clear transparent fluid.

*Treatment*—Only two drugs are worthy of mention in the treatment of hookworm disease: (1) betanaphthol, and (2) thymol.

I consider betanaphthol more reliable than thymol. Thymol is perhaps a more powerful anthelmintic, but the depressant effect of betanaphthol is not so marked. I treat my cases as follows: Keep patient on liquid diet the day before giving the anthelmintic, and about 3 p. m. give a one ounce dose of magnesium sulphate so as to thoroughly empty the bowels that the anthelmintic may act upon an exposed intestinal mucous membrane. The following morning give betanaphthol, grains 15 (in capsule) at 7, and repeat same dose an hour later, and at 11 a. m. give another one ounce dose of magnesium sulphate. Thymol treatment in exactly the same way, except that the dose is double that of betanaphthol. I always have my patient report about ten days after treatment, bringing with him a specimen of feces. If ova are still found, the treatment is to be repeated. The average case will require from one to five treatments, though there is always marked improvement almost immediately following one treatment, whether all the worms are removed or not.

In concluding, I wish to especially impress these facts upon the railway surgeons who are treating Mexican track laborers:

(1) Hookworm disease is to be found amongst many of our Mexican track laborers recently arrived from certain sections of Mexico—chiefly from the Southern States of Mexico, from the Isthmus of Tehuantepec and Yucatan, and including the States immediately above Mexico City.

(2) Every person harboring this parasite may be a focus of infection to others, for if he defecates upon the soil, where others may tread barefooted, he supplies the medium for further infection, providing the proper degree of temperature and shade be present.

(3) There is little danger, however, of extensive spread of the disease in California, New Mexico or Arizona, as all the cases we see here are recently imported into a climate where neither occupation, improved habits, nor temperature will ever favor a spreading of the condition.

(4) This is, nevertheless, a subject that every railway surgeon in particular should be familiar with, at least from a working standpoint, and it is a sad fact that this is not to-day the case.

## SAN FRANCISCO COUNTY MEDICAL SOCIETY PROCEEDINGS.

During the month of December the following meetings of the San Francisco County Medical Society were held:

### Section on Medicine, Tuesday, December 6, 1910.

- 1—Presentation of Case, Wm. C. Voorsanger.
- 2—Demonstration of Two Cases, Milton Abrahamson. Discussed by Drs. McClenahan, Welty, Hyman, Voorsanger, Abrahamson.
- 3—Presentation of Cases of Leutic Joint Troubles, Samuel J. Hunkin.
- 4—Presentation of Case, Cullen F. Welty.

### Annual Meeting, Tuesday, December 13, 1910.

- 1—President's Annual Address, Langley Porter.
- 2—Secretary's Report, René Bine.
- 3—Reports of Committees.
  - a—Finance Committee.
  - b—Committee on Medical Ethics.
  - c—Executive Committee.
  - d—Committee on Public Health.
  - e—Committee on Library and Publications.
  - f—Committee on Admissions.
  - g—Milk Commission.
  - h—Committee on Necrology.
  - i—Committee on Poliomyelitis.
  - j—Committee on Contract Practice.
- 4—A Preliminary Report on the Use of 606, Howard Morrow. Discussed by Drs. Keck, Honston, Morrow.

### Section on Surgery, Tuesday, December 20, 1910.

- 1—A Brief Consideration of the Surgical Treatment of Hyperthyroidism, Wallace I. Terry. Discussed by Drs. Rixford, Farnum, Rothganger, Terry.
- 2—Muscle Plastic for Incontinent Sphincter Ani, with Demonstration of Patient, Alfred Newman. Discussed by Drs. Zobel, Brunn, Rixford, Sherman, Hunkin, Newman.

During the month of December the following were elected to membership: R. B. Tupper, F. R. Mugler, R. L. Ochsner, E. I. Leavitt, W. C. Dawson, Chas. E. Taylor, L. A. Craig, R. McW. O'Neal, H. B. Graham, Bertram Stone, G. W. Hartman.

The following reports were among those made at the annual meeting:

#### President's Address.

By LANGLEY PORTER, M. D., San Francisco.

In rising to address you, fellow-members of the San Francisco County Medical Society, on this the last time that I can act as your chosen president, my first and most pleasant duty is to thank you for the confidence you have reposed in me and the honor you have conferred upon me through your Board of Directors, and for the courtesy and friendliness with which you, as a society in meeting assembled, have accepted the rulings of the chair. No matter what may eventuate in years to come, this will ever be to me the most memorable year of my life and one that I feel has obligated me to this Society for the rest of my life, and with deep emotion I thank you once more.

Not only are my thanks due to the members of the Society for their confidence, but to the members of the Board of Directors and of the different standing committees for their earnest, self-sacrificing devotion

to the interests of the Society. At no meeting of the Board was a quorum absent and there was rarely less than sixteen members present at meetings. You will hear from the chairmen of the different standing committees reports as to the work done.

The work of the Executive Committee has been of exceeding value to the members and I feel that the provision of section work and of weekly meetings has been a step of incalculable advantage to the health and vigor of the Society, and the support engendered and interest aroused is a tribute to the determination of the members to make the meetings really of mutual benefit.

Notable papers have been presented and case demonstrations made in so thorough and illuminating a manner that the members of the Society have no need to be ashamed of its programs when compared to those of any other medical society wherever situated. It is planned that in the future there shall be occasional exchanges of programs between this Society and our sister societies in Alameda and Los Angeles, each providing the other with a program.

You chose for your secretary a man, the administration of whose office speaks for itself. He accepted the office at a time when the effect of our losses of 1906 had come to bear most heavily in a quite considerable burden of debt. So much so, that plans for bonding and borrowing were considered by the directors and rejected. To-day, after a year of Dr. Bine's unremitting labor, the Society is out of debt, and with an increasing membership it would seem that the financial future is assured and that in the not too far distant future we will again have a reserve fund.

The directors have felt that the purposes of the Society were more than purely intellectual, and it was decided to attempt a stimulation of the social side of medical life. To this end a committee, with Dr. Kugeler as chairman, was appointed to arrange the first annual dinner, which was held with an attendance of one hundred and twenty members, about one-fourth of the whole membership. Those who came appeared to enjoy themselves, and those who stayed away I hope regretted it sufficiently to put in an appearance next year.

A committee headed by one, who through many years of active life has devoted much time and thought to the welfare of your Society, Dr. C. G. Kenyon, has been working on a plan for housing the Society in a fitting manner. This plan will be presented to you, and even if it should fail to receive your endorsement, the labors of Dr. Kenyon and his committee place the Society under great obligation.

The Public Health Committee, following the suggestion of the American Medical Association, have arranged for popular lectures on medical subjects and are planning for a mass meeting to urge, before the influential laymen of this city, the advantages to their nation, the state and especially to San Francisco, that will follow the adoption of the Owen Law or some other similar statute, and the establishment of a properly authorized national department of health.

As this has not been a year of activity of the State Legislature your Committee on Legislation has



marked time, but in view of the rumblings of threatening attack on the medical law, it behooves the Society to provide a strong committee for next year, one that will co-operate with the State Society Committee. The present state law places not only the admission of candidates to practice in the state in the hands of the State Board of Examiners, but also the police powers of the state in the enforcement of those provisions of the law directed to the abolition of illegal practice. By direction of the directors, the secretary of this Society forwarded to the secretary of the State Board of Examiners a list of persons advertising themselves in violation of the law as practitioners; as a result a number of these individuals have been proceeded against and a few have been convicted and fined in the police courts. It is, however, the unpleasant duty of the president to record that the Society has not in all instances had proper or courteous treatment from the state board. (Anthony-Ashbury.)

The conclusions reached by your Committee on Contract Practice have been formulated and are before you. The committee was appointed to consider the whole range of hospital, lodge and contract practice, but the field was found to be so wide that the deliberations were confined to the subject of hospital relations. The more important subject of lodge and contract practice has not been touched upon and will form the subject of an investigation by another committee another year.

The presence of an unusual number of cases of anterior poliomyelitis in the city was brought to the attention of the directors, and a special committee was appointed to investigate the matter and a preliminary report will be made to you to-night.

So much for the work done by the Society during the year. I would submit to the Society one or two proposals for the future:

First, that the precedent established in sending delegates to the State Society as an organized body instructed as to the policy and desire of the county body in relation to State Society matters, be followed. San Francisco pays to the State Society a large proportion of its income, and yet our influence in the past has been far less effective in the council and at annual meetings than other less numerous but better organized county societies.

Second, that our by-laws be amended to provide for the annual election of only one-third of the directors. It is to the advantage of the Society that a continuous administration policy be adopted. It is the experience of all governing bodies that better and more progressive administration can be had when boards of directors are not entirely changed each year.

Another wise amendment to the by-laws would be one setting forth the objects of the Society. Most county organizations have such a section which emphasizes the fact that the county society is an integral part of the State Medical Society, and through it of the American Medical Association. Our by-law is in fact of a somewhat truculent wording and details whom we would reject rather than those we seek, and would welcome as fellows in this Society. A by-law giving the Public Health Committee power to act in cases of urgency would be wise.

In matters of policy, I would urge that the Society give very full and careful consideration to the plan that has been proposed for an amalgamation of the libraries of this Society and the Lane Library of Stanford University. The trend of modern times is toward union, and this trend is nowhere more in evidence than in the matter of medical libraries. In Chicago a union of all the medical libraries has been made and these merged in the John Crerar Library. Even so magnificent a lot of books as the sum collection was not considered sufficient to warrant a separate collection.

Now in San Francisco we have what is certainly the seventh, probably the sixth, largest collection of medical literature in America, which has behind it a fund of some \$80,000 or \$100,000, and what is

more important still, it has behind it the library organization of Stanford University. At present one trained librarian is at work cataloguing and a second is being trained for the work. Now this library, its organization and equipment, is open to this Society on very easy terms, and I for one am of the opinion that we would be guilty of gross obliquity should we fail to take advantage of our opportunity. The Stanford trustees, convinced that the best interests of medicine are to be served by centering the intellectual interests of medicine in one building, are prepared to supply to the County Society shelf room for this Society's library and to provide offices and assembly rooms for the Society's meetings at a cost to the Society of about what the rental of such inadequate quarters as these we now occupy would be.

Moreover, this income derived from the Society would be devoted to the purchase of periodicals, and there would be a further saving of money, because money now spent on duplicating periodical files would be saved. Practically all the benefits of such a library consolidation would accrue to members of this Society, for from this membership come by far the greatest number of medical readers. The objection that readers would lose time spent in reaching the neighborhood of Sacramento and Webster streets can be met by the fact that any time so expended will be more than made up by the saving effected by the aid of proper indexing and a trained helpful librarian. However, if the plan to own our own building is accepted and put into effect by the Society, it would still be a good plan to concentrate the libraries.

I would urge that every individual of this Society constitute himself a committee on membership. Let him look into the history of the Society and realize that since the inception of this Society in 1868 the science of medicine has become the great positive force. It is through just such societies as this the enlightenment of mankind and their emancipation from pain have come since Pasteur's day, because men have come together for the exchange of knowledge. The discussion of hypothesis and demonstration of achievement to their common stimulation and to the advancement of their profession. I am proud of the profession to which I belong; proud to be a humble follower of masters who laid down and are laying down the foundation of our art. From Pasteur, contemporary with the foundation of this Society, to Flexner, Ehrlich, Boudet, McKenzie, there is a host of men whose work has been brought here and made more vital and more essential because it came through the detailed experience of our fellow-workers, our comrades and our friends.

Now friends, let me again thank you for the honor you have done me, and in thanking you let me urge that every one in this Society be truly friends, helpful, hearty friends. Let there be no back-biting amongst us. Laymen will have hard enough things to say of us. Let us be ever ready in the defense of our fellow-members and loath to add any bit of scandal or criticism. Let our differences be honest, manly differences, openly and fearlessly expressed always to our opponent. Let us never forget that opposition and enmity are two very different things. Let us keep our indignation righteous and vent it only on those who drag our profession or our manhood into disrepute.

In closing I would quote to you from the first presidential address made to the Society by Dr. Whitney, its first president, in 1868:

"A few weeks ago a gentleman whose qualifications as a regular practitioner no one can question, invited to his residence several members of the profession to consider the propriety of organizing a medical society. Those who responded to that invitation represented the different nationalities of which the profession is here composed. It was unanimously resolved that steps be taken to bring together as large a number of those who are known

or believed to belong to the regular profession here, as possible for the purpose of forming a society."

After two or three preliminary meetings, with increased numbers, it was decided to send a notification to every practitioner in the city believed to be a regular member of the profession. This brought together a sufficient number to divest the meeting of anything like partisanship, and then forthwith proceeded to organize under the name of the "San Francisco Medical Society" by adopting a constitution and by-laws. The code of ethics framed, adopted and recommended by the American Medical Association constitutes the basis of our organization, and to this our constitution and by-laws conform.

This furnished a platform upon which all who are described as regular physicians and surgeons can meet upon terms of equality for mutual recognition and conference, whatever the source of their testimonials.

This Society seeks to secure co-operation among the "regular" members of the profession in San Francisco; and if its meetings are conducted in the right spirit, will be productive of mutual improvement by canvassing results of individual investigation and experience so that the observations of each may thus be made available for the benefit of all. Organized upon such a basis, with such objects in view, let us not only invite facts and observations, but give a cordial welcome to hypotheses in their interpretation.

### Secretary's Report.

Mr. President and Members of the Society: As secretary I beg leave to submit the following report for the year 1910, i. e., from the 22nd day of January, when I took charge of this office, to December 10th, inclusive.

Number of members in Society Jan. 22, 1910...	482
Admitted .....	43
Resigned .....	9
Transferred to other County Societies.....	6
Died .....	7
Dropped for non-payment of dues .....	27
Number members in Society, Dec. 10, 1910....	476

On going over the records of the Society on January 22, it was noticed that a large number of members were in arrears in their dues, in spite of 30 members having been dropped for that reason during 1909. Notwithstanding our continued efforts to collect all old accounts, as well as the current dues for the year 1910, it was impossible in some 27 instances to do anything but drop these names from the membership roll, thus losing \$789.25. There are now 476 members in good standing; many of them, however, do not seem to realize that dues are payable in advance, but from these members the Society can expect, within a very few weeks, to obtain the \$600 (approximately) still due. The Society is called upon to pay its assessment to the State Medical Society quite promptly, and cannot afford to carry delinquent members on its roll, and for this reason the total count of members is somewhat smaller than in 1907 and 1908, when less than one-half of the members paid their dues, but for whom assessments were nevertheless paid.

In the early part of this year letters were sent to several hundred local physicians, pointing out to them the advantages of membership. Still more recently the profession has again been circularized, with very encouraging results, so that it is believed that with renewed efforts on the part of this office, with the aid of an enthusiastic membership, at least 200 members should be obtained in another year. At this meeting alone eleven new members are to be admitted as proof of my statement.

### Financial Statement, January 22 to December 10. Receipts.

Received from Dr. Rixford, treasurer, 1909 (check) .....	\$1,714.32
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Received from Dr. O'Neill, secretary.....	316.81
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Total received (of which \$1027 was 1910 dues) .....	\$2,031.13
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Collected from members and rental of library .....	5,916.28
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Total receipts .....	\$7,947.41
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### Disbursements.

Rent .....	\$1,320.00
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Cal. State Med. Soc., rent in lieu of ex-	180.00
changes .....	

Salary of office assistants, stenographer....	435.00
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Salary of assistant librarian to July 15.....	455.00
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Old library bills .....	1,015.30
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1910 library bills .....	562.53
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Attorney fees, 1910 .....	125.00
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Assessment to State Society .....	1,900.00
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Old bills, printing, salaries, reimbursing Dr.	
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O'Neill .....	136.68
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Old attorney bills .....	525.00
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Incidentals (including printing, stationery,	
telephone, laundry, supplies, rent of safe	
deposit box, insurance on library, secre-	
tary's bond, taxes, commissions on col-	
lections, entertainment, etc).....	794.60

Total .....	\$7,449.11
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Balance on hand .....	\$ 498.30
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There was furthermore received from the treasurer eight \$1000 N. W. Pacific bonds, with accumulating interest thereon amounting to \$600, \$10 of which was deposited in the current fund, from which fund the same amount was drawn last year for relief purposes.

The sum of \$200, representing the July coupons, has been added to this fund, on deposit in the S. F. Savings Union Bank.

As the members will have noted, it has been the aim of this office to keep the members in touch with all the transactions of the Board of Directors, so that the program has naturally increased considerably in its dimensions. In this way we have tried to maintain a greater interest on the part of members in the general welfare and proper status of the Society.

The following is a statement of the amounts collected and checks paid per month:

	Collected Dues.	Checks Paid.
Jan. 22, 1910, received from Drs.		
O'Neill and Rixford, of which		
\$1027 are 1910 dues.....	\$2,031.13	
January .....	150.00	
February .....	741.80	\$ 962.70
March .....	391.00	1,468.98
April .....	536.90	393.75
May .....	367.00	592.40
June .....	507.25	255.50
July .....	1,123.15	723.75
August .....	633.35	194.10
September .....	701.33	1,268.35
October .....	350.50	496.50
November .....	338.50	597.60
December .....	75.50	495.48

Totals .....	\$7,947.41	\$7,449.11
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Balance on hand .....	498.30
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There are still a few outstanding bills to be settled before December 31, and it is probable that their total will not exceed \$300.

RENÉ BINE, Secretary.

### Annual Report of the Milk Commission, December 13, 1910.

The Milk Commission has held monthly meetings regularly throughout the year and has issued certificates from month to month to the Ideal Farms at San Anselmo and the Timm Dairy at Dixon. The



milk has been of the same high quality which has been produced in the years previously. Mr. Nathan Moran, lawyer, and Dr. Geo. S. Baker, of the Bureau of Animal Industry, have served with the commission and rendered valuable services to the Society. The experts for the commission have been the same as last year, with the exception that Dr. Roadhouse has served since the resignation of Dr. Ward, in the capacity of veterinarian and bacteriologist.

The following written reports have been received by the commission during the year:

From the managers of the dairies.....	21
From the veterinarian .....	20
From the bacteriologist .....	88
From the chemist .....	66

195

In addition the herds at the certified farms have been examined regularly for tuberculosis, and individual members of the commission have made many personal visits during the year to the different farms.

Besides supervising the production of certified milk, the commission during the year arranged a popular meeting at Davis, preceding the annual meeting of the State Society, in association with the Health Association Congress, where matters pertaining to the production of certified milk were illustrated and explained to a large number of physicians, dairymen and others interested in sanitary problems.

The commission also attended a special meeting of the Santa Clara County Medical Society in an educational effort to extend the interest in certified milk. From these efforts and through a large amount of correspondence, commissions in various parts of the state are in process of formation.

Both certified dairies competed very successfully on October 19, 1910, at the National Dairy Show in Chicago. Samples many days old from the Timm Dairy and the Ideal Farms Dairy received a high score in the competition with certified milk produced near Chicago.

The commission has interested the railroads to the extent that special efforts are now to be made for more rapid transportation of certified milk into San Francisco.

All complaints which have been received from members of the Society have been carefully considered and thoroughly investigated, and where the fault lay in the production or distribution of the milk, correction has been ordered by the commission. One distributor, after repeated offense, has been refused the right to handle certified milk.

The sale of certified milk has increased slowly. From the sale of 2213 quarts per day in November, 1909, it has increased to 2982 quarts per day in November, 1910.

The finances of the commission are in excellent shape. At present all the experts are paid directly by the commission and the dairymen are charged a sum sufficient to cover the expense as well as all other educational and incidental expenses of the commission. In November, 1909, there remained a balance in the treasury of \$331.63. After paying an old account to Dr. Ward of \$165.50, due for services rendered a former milk commission, and meeting all other expenses for the year, there remains in November, 1910, a balance to the credit of the commission of \$448.78.

ALFRED BAKER SPALDING, Chairman.

#### Section on Medicine, San Francisco County Medical Society. December 6, 1910.

#### Report of a Case of Arterio Sclerosis due to Lead Poisoning, With Chronic Nephritis, Dilatation of Aorta, Angio-Neurotic Edema.

By WM. C. VOORSANGER, M. D., San Francisco.

L. B., re-entered Mt. Zion Hospital November 18, 1910. Nativity, Russian. Age, 30. Single. Occupa-

tion, carriage painter. Family history: father and moth both died of "kidney trouble." One brother living and healthy. No history in family of tuberculosis, rheumatism or insanity. Previous history: morbilli, scarlet fever, pertussis as a young child. Rheumatism at age of 10 years and has suffered several attacks thereafter. Yellow fever in 1902 in East Africa, followed in about three months by paralysis of left side of face, descending to left arm. Lasted nine months. In 1900, while in South Africa, patient was taken to hospital suffering from severe abdominal cramps. He was constipated eight days, leaving hospital in two weeks in very weakened state. In 1905 came to the United States still slightly suffering from former paralysis. Shortly thereafter entered hospital for abdominal cramps and dizziness. Came to San Francisco in 1906 and remained well for two years. In 1908 had several attacks of vertigo, nausea and abdominal cramps, for which he was admitted to Mt. Zion Hospital, remaining four days. In September, 1909, re-entered hospital for similar attack and remained five weeks. April, 1910, re-entered hospital, complaining of dizziness, faintness, constipation, shortness of breath and palpitation of heart. Remained three weeks. September 13, 1910, re-entered hospital. Left October 13. Re-entered October 17, leaving November 13. At this time developed an intense swelling of face and lips. November 18 was brought in an ambulance, having fainted on street, and is in the hospital at the present time.

Present complaints consist of pain in the chest and in right upper abdomen; dizziness, nausea and palpitation of heart, headaches and extreme nervousness.

Status: Well-built man, rather anemic. Teeth poor. Stomatitis present, gums suppurating, tongue coated. No glandular enlargement. No disturbance in course of cerebral nerves. Slight edema of lower extremities. Chest moves freely and equally. No dulness over lungs. Normal respiration.

Heart and blood vessels: Apex beat not visible, not palpable. A thrill is felt over preeordia, but is more marked upon palpation on jugular fossa. It appears to be presystolic in character. Heart borders upper at third interspace, left at nipple line. Right, one finger's breadth to right of right sternal line. Dulness is quite marked over upper sternum for an area of 2½ inches. Jugular pulsation visible and pronounced, also visible pulsation of radials and carotids. Radials are markedly thickened and sclerosed, tension increased, rate 80. Blood pressure R. R. apparatus 200. At apex of heart a systolic murmur is heard, increasing in intensity upwards and heard most distinctly over aortic area. An X-Ray photograph shows a dilatation of aorta.

Abdomen: Right upper quadrant a large tumor mass is felt. Liver enlarged to percussion.

Reflexes exaggerated.

Urine examination: 1020. Albumen 1 per mille. No sugar. Microscopical examination negative.

Blood examination: shows slight secondary anemia.

Diagnosis: Arterio sclerosis due to lead poisoning, chronic nephritis, dilatation of aorta, angio-neurotic edema.

The treatment of the case has been and is purely symptomatic. Rest and thorough purging and diuresis with small doses of potassium iodide relieve the attacks, but these return whenever patient resumes work. The future is naturally very much in dubio.

#### Demonstration of (1) Case of Cretinism, (2) Primary Brain Tumor with a Secondary Hydrocephalus.

By MILTON ABRAHAMSON, M. D., San Francisco.

Case 1. I take pleasure in being able to present to you to-night two cases which are of unusual interest; one a sporadic cretin, the other a case of primary brain tumor with a secondary hydrocephalus. Both

children appeared at the Mt. Zion Hospital on the same day; they are both four years of age, therefore making it most interesting to notice the objective points of similarity and the points of difference in the symptoms presented by such totally different diseases. That the mentality and general development of a child with such profound disturbance in the brain should be superior to that of one suffering from insufficient thyroid secretion in nothing short of remarkable. That the child with stunted growth and impaired intellect can be promised with certainty that his body will grow and that the clouded mentality will clear is likewise impressive. In my own experience I have seen five typical cases of sporadic cretinism. All of these were four to six years of age when treatment was instituted and all of them were so markedly improved by thyroid extract that one would not recognize them as the same children. The pictures of my case were taken when the child was six months old and show plainly that the disease in him has progressed very slowly. That the head has a peculiar shape is true. The frontal bosses are marked, over the left parietal area a bald spot is seen. The bridge of the nose is depressed, there is slight puffiness over the dorsum of feet and hands, but the expression is bright, and the child is vivacious.

The family history: negative. Personal history: child was born at the Mt. Zion Hospital, labor being normal. He was very thin at birth, but soon pleased his mother by growing rapidly and being placed in the heavyweight class. But unfortunately he became so fat that he was unable to either walk or talk till he was over three years of age. The child was breast-fed for a year and a half; first tooth erupted at six months, the last at three and a half years of age. He is of passive disposition, good-natured and playful. Up to two months ago the child kept its mouth open and the tongue protruded. He suffers from marked constipation, diurnal and nocturnal enureses. Mother has noticed that while skin was moist and white at birth, it has gradually turned yellow, mummy and very dry; she has never known the child to sweat. Fontanelles closed the second year. As you all can see, the child is much underdeveloped, he has a typical cretinoid expression. The head is large and seems too heavy for the child to support it. The abdomen is pot-shaped and bilateral inguinal hernia are present—a condition which is very commonly seen in cretins. The legs are bowed. There is a myxedematous patch over the spine between the neck and thorax—this pad being covered by thin hair. The soft tissues of face are puffy, the bridge of the nose is depressed, the outer thirds of eyebrows are scant. No other abnormality is present. Treatment: Treatment was started a week ago, and  $2\frac{1}{2}$  gr. Thyroid Extract were given three times daily. The dose will be increased up to five grains three times daily. The child will be kept on this treatment until the cachexia disappears, when I hope to have the pleasure of presenting him again.

Case 2. A Case of Brain Tumor with Secondary Hydrocephalus.—It is interesting to know that the child was brought to the clinic simply to be relieved of persistent vomiting. The following history was obtained: Family history: Negative as to venereal disease in either parent, although a positive Wassermann reaction was reported at the Cooper Medi-

cal College Clinic a few weeks prior to her entrance at Mt. Zion Hospital Clinic. The mother was healthy up to the time this child was born, but shortly afterward developed carcinoma of one breast and was forced to nurse the baby with the other. A year and a half after the child was born the mother was operated on for carcinoma of the breast and died ten months later from general carcinomatosis. Personal History: The patient was an eight-months child; the labor lasted three days and she was delivered with forceps on account of the large size of the child's head. The child was in a state of asphyxia neonatorum for an hour. She weighed fifteen pounds at birth and at the end of the second year weighed forty pounds. Nothing abnormal was noticed until her aunt took charge of her two years ago; it was then noticed that when the child attempted to walk it dragged its right leg, and would always take things with its left hand, showing that the right hand was weak. The head was noticed to be large and the eyes crossed. It was also noticed that the right side of the face was smoother than the left. At this time she was happy, playful and considered bright. The speech was clear and the hearing acute, the child having a particularly good ear for music. Sleep is normal and the patient is wide awake during the day. No history of headache was obtainable. The child has fallen several times, and when observed it has usually been backward, at times to the right. The last fall occurred three months ago when she struck her head, and since that time vomiting has occurred at varying intervals. The child has trouble starting the flow of urine and urinates two to four times daily. Vomiting occurs sometimes with regularity and sometimes it is absolutely irregular. Some days the child would vomit all food as soon as it was taken, at other times it would vomit once, twice or three times a day. It was noticed, however, that if the child was absolutely quiet and at rest it would not vomit. Outside of an occasional cough during the winter the child has been free from any of the diseases of children.

Physical examination made November 29th, 1910: As one looks at the child one is impressed with the peculiar expression of the face; the head seeming much larger than it ought to be, bulging anteriorly and laterally. The zygomatic processes are prominent particularly on the right side. There is a slight right facial paresis shown by the smoothness of the right side by the wide palpebral aperture and by the drooping of the right angle of the mouth. Slight exophthalmus is present more marked on the right side. There is also present a convergent strabismus due to paresis of the right sixth nerve. Lateral nystagmus is present, the nystagmoid movements being more marked when patient looks toward the extreme right. Eye movements are otherwise normal. There are several irregular scattered blue spots over the sclerae of both eyes. Corneal reflexes are normal. Sense of taste and smell both normal. Sense of hearing somewhat impaired on right side. Movements of tongue normal. All other cranial nerves except the right 6th, 7th, and 8th are normal as stated before. Teeth, tonsils and pharynx all normal. Ears normal, bridge of nose slightly depressed. The fontanelles are completely closed. The head measures 22 cm. from one parietal prominence to the other, and 23 cm. from the frontal to the occipital prominence. Careful examination shows the digestive, circulatory, respiratory and lymphatic systems normal. Tactile sensation and sensation to pain are normal all over the body. Marked ataxia of both upper and lower extremities while patient is lying down, but more marked on right side. Muscular power seems good. Abdominal reflexes present. Knee reflexes



exaggerated particularly the right. Babinsky, Gordon and Oppenheim reflexes present on right side. Ankle and patella clonus occasionally present on right side. The gait is of the cerebellar ataxic type. Special examinations: X-Ray examination, negative.

Ophthalmoscopic examination November 29, 1910: Marked choked disc present particularly on the right side. November 29, 1910, Dr. L. Schmidt reported Wasserman and Noguchi examinations both negative.

Examination of urine: Negative.

Examination of blood: Haem. 90%; Red, 5,500,000; W. 9,200; P. 60; Mon. 6; Lyn. 32; Eos. 2.

Diagnosis: I think in consideration of the above findings one is entitled to make the diagnosis of a subtentorial tumor, probably situated on the right side in the cerebellar-pontine space.

Treatment: If possible the child will be put on vigorous anti-syphilitic treatment for six weeks providing it shows some tendency to improve. If improvement is not marked operative interference will be recommended to the parents.

**Discussion**—H. C. McClenahan: I saw the last case presented by Dr. Abrahamson a few weeks ago in the Pediatric Clinic at Cooper Medical College. The child was in about such a tantrum as she was to-night, rendering a complete examination impossible. I gained the impression either from the mother or Dr. Porter that the child's history was suggestive of congenital or acquired hydrocephalus of meningitic origin. Anyway from the history I got at the time, and the objective appearance of the head, I did not hesitate to diagnose hydrocephalus. Whether or not the hydrocephalus was caused by the presence of a tumor, my examination was not sufficient to determine; but that the child is typically hydrocephalic, there is no doubt. The symptoms can be accounted for by hydrocephalus with marked intracranial pressure. I am very much interested in the case, especially as to the existence or non-existence of a tumor to account for the symptoms. If the history of meningitis is correct, I think it is unnecessary that a tumor must exist to account for the symptoms.

Cullen F. Welty: I examined this case before the meeting and do not find nystagmus. In the event of growth in the posterior fossa, there should be increasing nystagmus to the same side, with the increased size of the tumor. There should also be deafness, which there is not. The caloric test would also be negative. There is not a facial paralysis—there may be some involvement of the fibres that go to the under lid. While all the tests and findings are of the utmost diagnostic importance in a positive finding—they do not assume so much importance in a negative finding. In this particular case I am strongly of the opinion that it is a hydrocephalus instead of a new growth.

Sol. Hyman: Whether this patient has a hydrocephalus is extremely difficult to determine at this time, so remote from the time of onset. It is, however, most important to determine, if possible, whether the lesion is luetic or not—from a therapeutic standpoint. Nonne (Hamburg) has just published a series of cases with postmortems, and has been able to demonstrate that in patients whose blood shows a positive Wassermann reaction and where there is a lesion in the central nervous system that, if such lesion be syphilitic, the Wassermann reaction in the cerebro spinal fluid is positive; whereas, if the lesion be non-syphilitic, the cerebro spinal fluid will give a negative Wassermann reaction. Where, however, increased intracranial pressure exists, as in this child, a lumbar puncture is an unjustifiable procedure. Under these circumstances we must rely upon a course of anti-syphilitic treatment. If no decided and marked improvement is apparent after a definite short period of time (six weeks is the probation period of Gowers and Horsley) then the increased intracranial pressure must be relieved

by operative measures, which at the same time may serve the purpose of an exploration.

William C. Voorsanger: When this case was first at our clinic and afterwards in the hospital, there was not a great deal of question but that this patient did have hydrocephalus; the question that arose, however, was how could we account for these symptoms by the diagnosis of pure hydrocephalus. I personally take issue with the statement that all of these symptoms can be accounted for by the diagnosis of hydrocephalus. The history which Dr. McClenahan quotes can be shown to prove the contrary. The child has had a gait which is getting progressively worse; she walked two years ago a good deal better than she does now. I think unquestionably we have to look for something more than simple hydrocephalus to account for all these symptoms which have been brought out to night. There may be an internal hydrocephalus there, but I certainly agree with Dr. Abrahamson that there is also a tumor present, either in the cerebellum or pons.

Milton Abrahamson: Dr. McClenahan states that the aunt gave a history that the child had fever, vomiting and spasms two years ago. I spent two or three hours in obtaining a careful history from the aunt and uncle of the child and they did not give anything suggestive of fever, acute infection or vomiting of any kind. All you have to do is to analyze the picture that I passed around; at that time the patient was two years of age. The head was then large and the right face was already slightly paretic. A point against congenital hydrocephalus is that the fontanelles closed early and that the head is very much larger in hydrocephalus than the head of this child. Another point against the diagnosis of internal hydrocephalus, I think, is the choked disc. Choked disc occurs almost invariably when a brain tumor is the primary cause. It seldom occurs in uncomplicated idiopathic hydrocephalus. Dr. Welty examined the child before she was brought in and he did not find nystagmus present, and he states that nystagmus is present constantly in tumors of the posterior fossa. In a recent *Journal of the A. M. A.* there were recorded a great number of cases of brain tumors and a great many of them in the posterior fossa that did not show continual nystagmus. In fact, Oppenheim contends that even the position of a tumor can at times be diagnosticated from the way the nystagmus occurs when the child's head is held in certain positions, therefore being one of the signs that help to make a topographical diagnosis of brain tumor.

#### Presentation of Cases of Luetic Joint Troubles.

By SAMUEL J. HUNKIN, M. D., San Francisco.

Some years ago in a paper on syphilis of bones and joints I called attention to two groups of cases, which were remedied by K. I., and said I had gone in most of the cases into the family affairs very carefully, and in view of the evidence could not consider the cases luetic, in spite of the so-called therapeutic test. To-day, having seen many more cases, especially of the first group, I admit their luetic origin. The Wassermann test has settled the question for me in several instances. One of the groups consisted of osteomyelitis with loss of more or less of a long bone, this destruction being later followed with repeated attacks of pain and swelling in other long bones. At this time, contrary to my earlier statement, I believe that a great number, perhaps all of the cases of multiple osteomyelitis of long bones in children, even when ordinary cultures show a pure staphylococcus infection, are luetic in origin, or if you please the peculiar character of this multiple osteomyelitic infection is probably only permitted in a luetic dyscrasia. I would even go further and say that multiple lesions of bones or joints are much more likely to be luetic than tubercular. Also that multiple sinuses around a single joint, especially when through such sinuses bare bone is directly

reached, point more strongly toward lues than towards tuberculosis or any other infection. Dr. McCurdy of Pittsburg believes that most cases of hip disease are syphilitic. While I disagree decidedly with Dr. McCurdy, still, as years go by and judgment ripens and as the laboratory aids get more and more definite, I find that I am getting a much greater proportion of luetic bone and joint diseases than I used to get. I would again call attention to a rather rapid development of joint disease after bone or joint injury, as an evidence of lues. Again the rapid practically symptomless development of secondary lesions, while the primary joint is under observation and treatment, is suggestive of lues. This is well shown in M. W., a boy here presented and who has a positive Wasserman. This boy while in my service at the Children's Hospital for a vertebral osteitis, on a second examination ten days later was found to have two vertebral lesions. Hardly thinking it possible this second lesion could have developed in so short a period, I rather blamed myself for a careless examination and with that idea in my mind went over every joint in a painstaking manner. Within two months the boy developed painlessly destructive osteitis in both hips, both knees and one ankle. Radiograms offered show the changes. At present all joints are apparently normal except the upper primal vertebral lesion and one hip. At present I look upon such a sequence, such a development and course as more than suggestive of syphilis. The development of bone or joint destructive osteitis after severe injuries is suggestive of lues. Tuberculosis in my experience practically never follows upon severe injury of a bone or joint. Such sequence and development suggest lues. Tuberculosis developing after fractures or dislocations is exceedingly rare. Luetic changes, however, are not rare after severe injuries. The matter of differential diagnosis between lues and sarcoma comes up under these circumstances and rarely is tuberculosis to be considered. Seldom does tuberculosis attack the shaft of a bone except by spreading. The matter of diagnosis is very important. Of course a Wasserman should be made. Tuberculin tests except under proper control are not of so much value, especially when positive. Of the various tests, I only place dependence upon the hypodermic injection of T. R. in doses of about 1/10 mg. with very guarded temperature charts. A local reaction accompanying a general reaction under these circumstances is complete evidence. Remember also please that even this does not exclude lues,—the symbiosis is not so rare as we used to think.

The radiograms of some of the children here exhibited are very interesting and show the luetic character of lesions well, especially so as they differ from tuberculosis.

Section on Surgery, December 20, 1910.

### Muscle Plastic for Incontinent Sphincter Ani.

By ALFRED NEWMAN, M. D., San Francisco.

One of the most deplorable conditions that can exist in an otherwise healthy individual is the inability to control the bowels. His sphere of action is bounded so to speak by the four walls of the toilet. He cannot work, he cannot play, his entire time is consumed in trying to keep clean. Despite every precaution he is constantly liable to soil himself. He is a burden to himself and a nuisance to those about him. Under such circumstances any procedure that offers even a remote chance of relief is entirely justifiable.

Leaving aside that large class of cases (obstetrical, etc.) in which it is possible and advisable to try to bring together the severed ends of the sphincter, there remain a certain number in which for one reason or another it is necessary to find a substitute for the sphincter ani. Of course as we all know it is impossible to produce a sphincter identical with the normal. So that if a substitute

can be provided that will enable the patient to ordinarily control his bowels, to get about and go to work, we may well be satisfied with the result even though the new sphincter does not extend to the examining finger the firm grip that the normal sphincter does.

The first to make a successful artificial sphincter, as far as I have been able to discover, was Chetwood\* in 1902, in a case where repeated operations had failed to cure a ruptured sphincter; his procedure was as follows: Semi-lunar incision from one tuberischii to the other reaching slightly above the tip of the coccyx. The flap is dissected down exposing the edge of the gluteus maximus muscle on either side. A ribbon of muscle a quarter of an inch wide and one-sixteenth of an inch thick is then dissected from the gluteus of each side having the attachment above at the coccyx. The perianal tissue is then tunneled and the strips crossing each other beneath the coccygeal-anal ligament are brought around the anus. The strips are then attached to the remains of the sphincter and to each other. The skin flap is then sutured back into place. Marvelous to relate this operation was a complete success and after a year Chetwood's patient was able to control his bowels under all conditions. Despite the most painstaking search the only other mention of this operation that I have been able to discover is in Tuttle's work on "Diseases of the Rectum." He reports five cases, in three of which the results were good, the other two were failures. This lack of mention leads me to believe that the operation is comparatively little known and for this reason I think it well worth while to once again bring it to the notice of the profession. Before proceeding to the narration of the present case I must state that the operation did not entirely appeal to me as it took no account of nerve or blood supply and the strips of muscle seemed far too slender. However, as the operation had been successful before I determined to try it. After having done the operation I learned of Shoemaker's<sup>1</sup> operation published in April, 1909, in which he preserves the nerve and blood supply of the gluteal flaps which are made more than one and a half inches wide, thus correcting the faults which attached to the original Chetwood operation.

This operation is as follows: Vertical incision beginning two fingers' breadth from the tip of the coccyx carried vertically downward for ten centimeters. Then obliquing downward and outward to a hand breadth below the base of the great trochanter. The skin flap so formed is dissected up. Two flaps, one for each gluteus maximus, are then dissected off, taking care to preserve the nerve supply which enters the muscle about midway between the tip of the coccyx and its insertion into the gluteal ridge on the femur. The flaps are from three to four centimeters wide, they are severed near their insertions and freed up to the entrance of the nerve. The tissue anterior and posterior to the anus is then tunneled and the flaps drawn through and sutured to the tuberischii of the opposite side, to each other and to the remains of the sphincter, if there be any. The woman on whom this operation was performed had been operated on several times for prolapse of the rectum, with the result that the prolapse was cured but the sphincter destroyed. After operation she was able to retain an injection of glycerin. A perfect, even marvelous result.

Patient, E. L., age 23. Family history good, worthy of note in previous history are three attacks of gonorrhea during the last of which he developed an ischio-rectal abscess which after a week's duration was opened in another hospital. This was in April of the present year. Resulting fistula was operated on three weeks later. After a few weeks' treatment the patient was transferred to the City and County Hospital on May 26th. Report on admission notes absolute incontinence of feces and purulent discharge from rectum. Patient remained with practically no treatment until he came under my care in the early part of August. Examination at that time showed a widely gaping anal opening

\*Med. Record, Apr. 5, 1902.

(1) Shoemaker, Plastik for Incontinence. Method of Reconstructing Sphincter. Semaine Medical. April 7th, 1909, XXIX.



with a profuse muco purulent discharge. Examination under ether, the parts being exquisitely tender, failed to show any remains of the fistula. Local treatment was then instituted, this lessened but did not cure the discharge; so that under the impression that the dribbling of the feces might still be maintaining the proctitis and also to relieve the sufferer of the intolerable incontinence, operation was determined on. The reason that impelled the use of a muscle plastic rather than direct union of the severed sphincter was the fear of infection,—the incision being well away from the anus and easily kept clean in Chetwood's operation.

Operation, August 8, 1910, kindly assisted by Dr. Zobel. Anesthetic chloroform, at patient's request. Patient lying on stomach with legs hanging over edge of table and spread well apart. Operation as described by Chetwood except that the muscle strips were made the thickness of a thumb and a heavy chromic ligature about the rectum tied over the assistant's finger, whose object was to support muscle strips during healing. The patient lay on his stomach for the first week, had bowels moved in same position and had to be catheterized the first ten days. Was discharged September 8th with wound well healed and rectal condition very much improved.

The patient is now working and can control the bowels very well but there is still some slight discharge. His artificial sphincter keeps his anus closed, a living ligature as it were round the lower opening of his bowel that contracts at will. As was to be expected true sphincteric tone is absent, the finger entering the sphincter with very little resistance. However, since leaving the hospital the patient has never had to wear a pad nor has he ever soiled himself although his movements are always semi-solid; even after taking a saline cathartic he has been able to hold his bowels until he reaches the toilet, so that under the circumstances the result, if not perfect, may be designated as very satisfactory.

**Discussion.**—A. J. Zobel: I had the pleasure and opportunity of being present when this operation was performed. From the result that has been obtained I think Dr. Newman deserves both praise and congratulation. While it is true that his patient has yet a partial incontinence, still he has been made so much more comfortable than he was at first that it may be considered practically a cure.

From observing this operation and studying it over, I have concluded that in the future it would be advisable to do as Dr. Newman suggests, that is, to use a broader and thicker segment of the gluteus maximus muscle, thereby preserving both the blood and nerve supply and so securing better muscle action.

I believe this is necessary because the transplanted muscle does not take up a true sphincteric action, but acts more as a cut-off muscle. It is in a state of relaxation until when contracted by the will it presses upon and occludes the anal canal.

This action of the muscle may be well illustrated even in normal individuals when they strongly contract both glutei and bring the buttocks closely together. The muscles here seem to reinforce the external sphincter muscle and help restrain the expulsion of the fecal contents of the rectum when that organ is under stress of an over-stimulated musculature. Therefore the larger the segment used the stronger its action as a cut-off muscle.

I think it well to remember that incontinence might be due not only to the loss of continuity of the sphincter muscles and the presence of an excess of scar tissue, but that it may also be the result of spinal or nerve disease. When due to the latter condition there is anesthesia and analgesia of the anal canal. This allows a fecal movement to come down the canal without being felt. Here I can understand how an operation would be futile, for it is only in those patients who feel the desire to empty the rectum and can bring the glutei maximi

into play in time, by the exercise of the will, who can be benefited.

Therefore a careful study of the causation in all cases of fecal incontinence is necessary. A case in point is a man who came to my rectal service in the San Francisco Polyclinic shortly before the fire of 1906. His complaint was fecal incontinence, and otherwise he appeared perfectly well and normal in all respects. Examination disclosed a peculiar thinning of the external sphincter, and I was at a loss for a diagnosis of the cause. The fire destroyed the Clinic and he disappeared from my observation. About eight months or so later I saw him walking on the street. He had the unmistakable characteristic gait of the sufferer from locomotor ataxia. Then the diagnosis was made for me, and since then I have never failed to remember that fecal incontinence may be one of the earliest symptoms of locomotor ataxia.

In regard to the prophylaxis of incontinence, I believe that much of this condition following fistula operations could be avoided if more care would be taken by the surgeon in divulsing the anal canal. When roughly and hurriedly done there is much bruising and laceration of the parts with considerable effusion of blood into the tissues, and as a result primary union of the excised wound fails.

When spinal anesthesia is used the anal canal becomes patulous and soft of its own accord and one can work in it almost without needing to divulse it at all, and primary union after excision of the fistula is more frequently secured.

Emmet Rixford: In view of the history of the many ineffectual attempts to devise an operation which will give the patient with anal incontinence real control of his discharge, this operation described by Dr. Newman is most interesting—and the person here exhibited certainly has contractile power of the anus when, it seems, he had not before the operation. I am not altogether convinced, however, that the contraction present is not produced by the sphincter muscle, for confessedly there was but a single incision in the muscle as the cause of the incontinence. I would like to ask Dr. Newman how he determines that he transplanted strips of the gluteus muscle actually contract for it seems unlikely that such long and thin strips of muscle would preserve their contractile power when there is no certainty that their nerve supply was preserved. Is the contraction tonic or are the patient's bowels continent only when he voluntarily contracts the gluteus maximus muscle? To be sure when the man attempts to contract the anus on the examining finger he simultaneously contracts both gluteus muscles, but this may be coincidental or the result of suggestion. Can he by his will contract the anus independently of the gluteus muscles? I do not know that the gluteus maximus muscle is one of those muscles like the common flexor of the forearm over which the possessor has volitional differentiation as to the contraction of its different parts. The best test of this operation would be in cases of complete paralysis of the sphincter muscle or after complete excision of the same as is occasionally done for carcinoma.

To return to the sphincter muscle proper, I would call attention to the fact that with a comparatively small part of the muscle active, i. e. having a good nerve supply and not too much cicatricial tissue about it, excellent control can be obtained.

Harry M. Sherman: When Dr. Brunn told us that this patient had been at the University Hospital I was very much interested to know whether he had come under my service or that of Dr. Huntington. Dr. Brunn's very frank and honest statement exculpates me. I do not understand myself, why Dr. Newman did the operation which he describes. A long while ago when Mr. Ball of Dublin was here, I had in my care a little girl whose rectum opened into the vagina just below the cervix, and I was wondering whether it was possible to make for that little girl a sphincter out of strips of muscle

from the glutei after moving the anus to its normal site, and Mr. Ball persuaded me not to do it. I should think that would be exactly the same case in this instance where the narrow strips of gluteus muscle were used, and with the broader strips the problem would be only more complex, for in each instance the transplanted muscle must become indifferent tissue without doubt. The questions which Dr. Rixford has asked are naturally the ones that would come to any one's mind, as to what part of the nervous system was controlling this new sphincter, if it could become a competent tissue. With a sphincter which is to a certain extent competent, extending around the greater part of the anal opening, there should in time come to be a certain control and if infection is not present, it should be possible to repair the sphincter so as to make a complete circular muscle under ordinary circumstances. I am saying this in spite of the fact that I have in my wards now a man in whom I am probably failing to accomplish this, but in the general run of cases this should be a possible thing to do. The statement of Dr. Zobel that in cases of spinal anesthesia manipulation of the anal canal is possible without dilatation of the sphincter is new to me. I have dissected out a number of fistulae and made immediate suture closing the whole of the fistulous tract and getting primary union all the way through from the mucous surface to the base of the fistula, including the muscle, with a good deal of satisfaction. This has always been done under general anesthesia and after a careful, pretty complete stretching of the sphincter. It would be flying in the face of Nature to suture a sphincter without having rendered it parietic by overstretching, it would be inviting spasmodic action which is what we wish to avoid for a few days. I should like to see Dr. Zobel do that some time, because the method would be attractive if it could be done, but I am inclined to be a little bit skeptical about it. The plan which Dr. Newman has described this evening is tempting also to me, for this little girl whom I spoke of has since been subjected to an operation by me and the anus put into its proper place so that she has rectum opening in the integument behind the vaginal opening; she has not, however, a sphincter and has to be very careful about attention to herself and wear a napkin, and when she finds a movement is coming she has to go to the toilet without delay; her condition has been made more tolerable by a pretty firm circle of cicatricial tissue which has always a tendency to contract and has to be kept dilated, and this she does herself with a little rubber bougie.

Samuel J. Hunkin: While I know nothing about the exact subject of the paper, still the discussion has been exceedingly interesting to me, and if it is permitted, would like to speak regarding some points in which I am at variance with two of the speakers. I do not at all agree with Dr. Sherman that the mere suturing of a muscle is likely to provoke spasm in the muscle, if the muscle was not previously paralyzed. I cut and suture muscles rather frequently and spasm is not provoked afterwards if rest is maintained, and I think the trouble in this special area is not the suturing of the muscle, but the failure later to secure rest. Dr. Rixford objects to the procedure on the ground that the band of gluteus would only contract when the man attempted to move his hip, that is, the man in order to "shut his rectum off," would have to think "outwards rotation of the hip." I am inclined to think from my experience with other muscles, that the muscles will learn to contract when its need is felt, and if it goes around the rectum in two ways as I understand it does, it will single out its function and control the bowels better and better as time goes. Of course Dr. Rixford may have to single out his muscles as he wills and moves and even call each by name, but the most of us do not have to do this, but we will the effect and the muscles do the rest.

Alfred Newman: Gentlemen, I feel highly flattered. If I had no other justification for the operation, the discussion that I have provoked would fully justify it. As I said in my paper, my justification for the operation was the infection. I said at the time that it was a case that ordinarily could have been easily treated by dissecting out the scar and bringing the ends of the sphincter together; and that in the after treatment, in order to avoid infection, I kept the patient on his face so that the pus would not run over the wound. If I had not done this operation I would simply have gotten another huge ischio rectal abscess and after that would have had the proper amount of justification to suit everybody. Referring to Dr. Rixford's questions, in regard to the function of this muscle I said at the time "Marvelous to relate the operation was a success." I had the same misgivings that Dr. Rixford expresses and I said one of my excuses for bringing it forward was the fact that the operation was comparatively unknown and that I performed the operation only because it had succeeded before. I realized that the chances were more than even that it would be a failure and I think I brought it out in my paper. As to whether the artificial sphincter functionates by itself, along with the rest of the gluteus muscle or whether the sphincteric action is due to the contracting gluteus pulling on the muscle strips, which have been reduced to the consistency of fibrous cords, the chances in general would seem to favor the latter possibility. Yet it is possible that nerve filaments that run to the coccygeal insertion of the gluteus maximus, I have frequently seen such in the course of my dissection of this region,—may suffice to enervate the muscle strips. They appear to have done so in the present case. How do I know that it is not the sphincter that is doing all the contracting? In the first place whenever the patient narrows his anal orifice you can see the inner edges of the glutei contract; in the second place, you can feel the muscle strips contract on either side and this without the synchronous contraction of the rest of the gluteus maximus; and thirdly, in a case of my knowledge a one-sided operation was done, with the object of bridging over the hiatus in the sphincter with a muscle flap without success. Of course there is a good piece of the sphincter remaining and this helps along. It is observed that the anal canal is very long; this is due to the fact that I put this artificial sphincter proximal to the external sphincter; this has lengthened the canal. When the canal is once dilated, the patient evidently has little power of contraction. I also stated that I did not get a true sphincter here. I got what I tried to get,—a good functional result.

## SOCIETY REPORTS

### ALAMEDA COUNTY.

The annual meeting of the Alameda County Medical Association was held Tuesday evening, December 20, 1911. The program was as follows:

- 1—Immunity, and How Nature Cures Disease, by Dr. S. H. Butreau.
- 2—Reports of the Out-Going Officers.
- 3—Report of the Result of the Election by the Tellers.
- 4—Induction into Office of the Incoming Officers.
- 5—Refreshment and a Social Hour.

Dr. Butreau's paper was discussed by Drs. Briggs, Emerson, Rowell, Clow, Archibald and Dukes.

The reports of the out-going officers showed that the Society had made constant progress throughout the year just ended.

Officers elected: Dr. A. S. Kelly, president; Dr. W. A. Clark, vice-president; Dr. Dudley Smith, treasurer; Dr. Pauline S. Nusbaumer, secretary;



councilors—Dr. W. O. Smith, Dr. N. H. Chamberlain, Dr. M. L. Emerson, Dr. David Hadden, Dr. Alvin Powell, Dr. J. Maher. Delegates—Dr. M. L. Emerson was elected to fill out the unexpired term of Dr. S. H. Buteau, resigned; 1911-1912, Dr. C. A. Dukes, Dr. Daniel Crosby, Dr. H. G. Thomas, Dr. Pauline S. Nusbaumer. Alternates (1911)—Dr. A. S. Kelly, Dr. Dudley Smith, Dr. J. L. Milton, Dr. G. G. Reinle, Dr. J. L. Lohse, Dr. J. K. Hamilton, Dr. W. H. Erwin, Dr. A. F. Gillhan.

PAULINE S. NUSBAUMER, Secretary.

### BUTTE COUNTY.

The Butte County Medical Society held its regular meeting January 10th at the office of Dr. Gatchell. The following officers were elected: President, Dr. D. H. Moulton; vice-president, Dr. C. L. Browning; secretary-treasurer, Dr. Ella F. Gatchell; censor, Dr. N. T. Enloe; delegate to the State Society, Dr. O. Stansbury; alternate, Dr. C. L. Browning.

Dr. Willard B. Johnson was re-elected to membership.

Dr. James H. Parkinson, from Sacramento, addressed the meeting relative to matters of health, sanitation, organization and other subjects of interest to the medical profession.

ELLA F. GATCHELL, Secretary.

### SAN JOAQUIN COUNTY.

At the annual meeting of the San Joaquin County Medical Society held at the office of Dr. B. F. Walker, the following officers were elected: B. F. Walker, president; Hudson Smythe, first vice-president; Mary Taylor, second vice-president; G. P. Hull, secretary; delegates to the State Society, A. W. Hoi-sholt and B. J. Powell; alternates, J. P. Hull and B. F. Walker.

The Board of Directors presented the following resolution:

"Resolved, That it be the sense of the Board that the San Joaquin County Medical Society shall discountenance all lodge or association contract practice and that any member of the Society who has such practice be given three months' notice to discontinue same, and if such member decline to discontinue such practice, he shall be suspended from the Society."

The same was adopted as read and shows the stand taken by the physicians of Stockton and San Joaquin County regarding cut-rate practice.

B. F. WALKER, Secretary.

### SONOMA COUNTY.

The Sonoma County Medical Society held a most agreeable and interesting meeting in Santa Rosa, Thursday evening, January 5, at the Hotel Overton. Dr. Bogle presented a paper on Reorganization of the State Board of Health. Dr. C. F. Grant was appointed chairman of the program committee for the February meeting, with Drs. F. E. Sahler of Geyserville, and J. Temple of Santa Rosa, as assistants. The meeting will be held in Cloverdale. Thursday night's meeting closed with a sumptuous banquet, with the new president, Dr. J. W. Seawell, as host.

JACKSON TEMPLE, Secretary.

### ACADEMY OF MEDICINE.

The regular meeting of the California Academy of Medicine was held in the library of the San Francisco County Medical Society, on Thursday, December 22, 1910. The scientific program was as follows:

1. Demonstration of Specimen, T. C. McCleave.
2. Exhibitions of Sections Demonstrating Pathological Conditions of the Spinal Cord, M. B. Lennon.
3. Report of Three Cases of Carcinoma Developing at the Site of Injection of Autogenous Cancer Vaccine, W. B. Coffey and H. W. Gibbons.

Discussed by Drs. Ryfkogel, Stillman, Rush, Tait, Coffey.

Election of officers for the year 1911: President, George E. Ebright; vice-president, August J. Lartigau; secretary, Ernest C. Dickson; treasurer, Henry J. Kreutzman. Meeting adjourned.

### BOOK REVIEWS

**The Practice of Surgery.** By James Gregory Mumford, M. D. W. B. Saunders & Co., Phila. and London. 1910. Cloth, \$7.00 net.

Most particularly worthy of notice are the chapters on Minor Surgery. The discursive form in which they are cast make them lively reading; their brilliancy and conviction are almost classic. The whole book is not so uniformly good. It is true that Mumford has forestalled much criticism by a sentence of his preface, which says, "As a general surgeon I may not attempt to deal comprehensively, accurately and scholarly with all branches of surgery," and that he announces his intention of taking up surgical ailments in an unconventional order—one to be determined by their interest and importance. Yet there are some frequently encountered and important diseases which he discusses with such brevity as to impair the value of the book to students. The paragraphs on treatment are almost uniformly explicit and good; that the author has laid down his personal standpoint in them is of decided advantage to the work. The diagnosis and symptomatology are less well explained. It is to the general practitioner that the book will most strongly appeal; he will find here a guide based upon the experience of a man of recognized worth that will scarcely permit him to go astray in the treatment of his cases. The book is less adapted to the student. The unconventional arrangement makes its use difficult; the elaboration of some chapters and the meagerness of others, the little stress laid on pathology and diagnosis make one disinclined to recommend it as a textbook. The illustrations are fair on the whole, those illustrating operative procedures good, the ones of pathological conditions less apt.

L. E.

**A Treatise on Diseases of the Eye.** By John Elmer Weeks, M. D., Professor of Ophthalmology in the University and Bellevue Hospital Medical College (Medical Department of New York University.) The Lea & Febiger, New York and Philadelphia, 1910.

Weeks has given us a book which proves a trustworthy guide for the student and general practitioner.

The development of the eye is concisely considered as is the anatomy. Then in order come general optical principles and routine examinations, followed by diseases of the various tunics taken in anatomical order.

In these various chapters nothing original is brought forth although the latest views as accepted are tersely given.

A chapter is devoted to the relation of the throat, nose and the accessory sinuses to the eye which is rather sparsely written. The operations are considered under a separate heading and asepsis, anesthesia and technic get full attention. The author is partial to the operations as practiced in the New York Eye and Ear Infirmary.

Under special remedies, serum therapy, X-ray and Bier's hyperemia are well considered and I might mention that the chapter on the localization of foreign bodies by Dr. George S. Dixon is one of the best in the volume.

I am glad to see attention paid to pathological diagnosis and technic in eye work as Weeks devotes a whole chapter to this subject. He and Webster Fox seem to be pioneers in this line in single volume text books, published in America.

All in all this is a reliable work and can be recommended to those who do not care to go more deeply into the subject. The printing, illustrations and paper are good.

W. S. F.

**"Manual of Clinical Pathology for the General Medical Practitioner."** By Richard Weiss, M. A., Ph. D., F. C. S., in collaboration with George Hirschell, M. D., London, and Andrew Charles, F. R. C. S., Dublin. Published by J. & A. Churchill, London, 1910.

We know no work that for accuracy, detail and simplicity and after all—compactness, can compete with this little pocket edition on clinical pathology. The busy physician finds it impossible to remember the technic of all the various tests which he should employ in his daily routine, but which, unfortunately, he does not often perform, because in the usual treatises, the descriptions frequently confuse him and give him an idea that the tests are quite complicated or difficult. The author has included examinations of the urine, gastric contents, feces and blood with the serum tests for syphilis, tuberculosis and typhoid. The book is eminently practical and will fill a long felt want.

R. B.

### The Modern View of Syphilis and Its Treatment.

By Gustav Baar, M. D. Published by D. Appleton & Co., New York, 1910.

This small book is a plea for the more frequent use of the Wasserman test. No mention is made of the recent modifications of said test.

Brief case histories are given of various syphilitic visceral lesions. As an appendix the author has inserted a description of Fournier's chronic intermittent plan of treatment by mercury and iodide. No mention is made of Ehrlich's work.

### Hookworm Disease.—Etiology, Pathology, Diagnosis, Prognosis, Prophylaxis, and Treatment.

By George Dock, A. M., M. D., Professor of the Theory and Practice of Medicine, Medical Department Tulane University of Louisiana, N. O., and Charles C. Bass, M. D., Instructor of Clinical Medicine, Medical Department Tulane University of Louisiana, N. O.; 250 pages, royal octavo, with 49 special engravings and colored plate; price \$2.50. C. V. Mosby Company, St. Louis.

A very comprehensive work on the subject with special reference to its aspects in the Southern United States.

The great importance of this disease and its wide distribution makes it necessary for all medical men to be more or less familiar with it, and a perusal of this work will certainly be of advantage. The book should prove of value to those who are specially interested in the subject.

H. G.

### DR. MILLICAN GOES TO THE LANCET.

Dr. Kenneth W. Millican, who was for some time a resident in California and was later connected with the Journal of the A. M. A., sailed on the 24th November for England where he is to be connected with the London Lancet. Dr. Millican made a great many friends while he was in this state and it is certain that they will wish him the very best of success in his new position.

## BOARD OF EXAMINERS, DECEMBER SESSION.

School of Medicine.	Passed.		Date of		Percentage.	
			Graduation.			
Calif. Elec. Med. Coll., L. A., Cal.....			5, 19, 1910		78.3*	
Coll. of P. & S., S. E., Cal.....			6, 6, 1907		80.6*	
Univ. of Cal., Coll. of Med., L. A. Dept., Cal.....			6, 2, 1910		83.2	
Univ. of So. Cal., Coll. of Med., Cal.....			6, 17, 1909		88.0	
Univ. of So. Cal., Coll. of Med., Cal.....			6, 17, 1909		87.1	
Univ. of So. Cal., Coll. of Med., Cal.....			6, 16, 1910		84.4	
Univ. of So. Cal., Coll. of Med., Cal.....			6, 14, 1906		75.2*	
Am. Med. Missionary Coll., Ill.....			6, 15, 1909		83.3	
Am. Med. Missionary Coll., Ill.....			6, 16, 1902		76.9	
Cleveland Med. Coll., Ohio.....			—, —, 1896	82.0 plus 5	87.0	
Cleveland Homeo. Med. Coll., Ohio.....			4, 30, 1903		81.9*	
Columbia University, Coll. P. & S., N. Y.....			6, 1, 1910		89.9	
Columbia University, Coll. P. & S., N. Y.....			6, 13, 1894	79.4 plus 5	84.4	
Columbia University, Coll. P. & S., N. Y.....			6, 1, 1910		84.3	
Denver Homeo. Coll., Colo.....			4, 23, 1901		78.7	
Detroit Coll. of Med., Mich.....			5, 9, 1901		76.2	
Geo. Washington Univ., D. C.....			6, 8, 1910		81.9	
Hahnemann Med. Coll., Phila., Pa.....			6, 2, 1910		75.5*	
Hamlin Univ., Coll. M. & S. Coll., Minn.....			6, 5, 1907		76.5*	
Harvard Med. Sch., Mass.....			6, 24, 1908		80.0	
Jefferson Med. Coll., Pa.....			3, 29, 1884	76.4 plus 10	86.4**	
McGill Med. Faculty, Montreal, Can.....			6, —, 1904		75.0	
Med. Coll. of Indianapolis, Ind.....			4, 17, 1903		77.3*	
N. W. Univ. Med. Sch., Ill.....			6, 16, 1904		80.6	
N. Y. Med. Coll. & Hosp. for Women, N. Y.....			4, 19, 1892	77.9 plus 5	82.9	
Omaha Med. Coll., Nebr.....			4, —, 1902		80.9**	
Pulte Med. Coll., Ohio.....			3, 14, 1892	75.1 plus 5	80.1	
Rush Med. Coll., Ill.....			6, 1, 1909		87.9	
Rush Med. Coll., Ill.....			6, 21, 1900	84.0 plus 5	89.0	
Rush Med. Coll., Ill.....			6, 15, 1904		83.2	
Starling Med. Coll., Ohio.....			4, 12, 1900	77.5 plus 5	82.5	
State Univ. of Iowa, Med. Dept.....			3, 4, 1885	70.1 plus 10	80.1	
State Univ. of Iowa, Med. Dept.....			6, 16, 1909		79.6	



Syracuse Univ., Coll. of Med., N. Y.....	6, 10, 1903		75.1*
Tufts Coll. Med. Sch., Mass.....	7, 15, 1903		81.3
Univ. of Arkansas, Med. Dept.....	5, —, 1908		75.5
Univ. of Buffalo, N. Y.....	6, 4, 1902		77.4
Univ. of Ill., Coll. P. & S., Chi., Ill.....	6, 7, 1910		83.6
Univ. of Ill., Coll. P. & S., Chi., Ill.....	6, 6, 1905		83.3
Univ. of Ill., Coll. P. & S., Chi., Ill.....	4, 20, 1897	73.1 plus 5	78.1
Univ. of Ill., Coll. P. & S., Chi., Ill.....	6, 5, 1909		76.3
Univ. Med. Coll. of Kans. City, Mo.....	4, 7, 1905		77.4*
Univ. of Mich.....	11, 26, 1901		87.4
Univ. of Mich.....	7, 1, 1897	81.4 plus 5	86.4
Univ. of Mich.....	6, —, 1892	70.7 plus 5	75.7***

## Failed.

Coll. of P. & S., Los Angeles, Cal.....	6, 26, 1908		71.0
Coll. of P. & S., Los Angeles, Cal.....	6, 6, 1906		67.7***
Coll. of P. & S., San Francisco, Cal.....	5, 19, 1910		73.4*
Coll. of P. & S., San Francisco, Cal.....	5, 19, 1909		73.2*
Coll. of P. & S., San Francisco, Cal.....	5, 17, 1906		66.7
Cooper Med. Coll., S. F., Cal.....	5, 5, 1910		69.0*
Cooper Med. Coll., S. F., Cal.....	5, 5, 1910		64.9*
Coll. P. & S., Baltimore, Md.....	—, —, 1888	54.6 plus 10	64.6
Eclectic Med. Coll., Cin., Ohio.....	—, —, 1885	66.2 plus 10	76.2
Geo. Washington Univ., D. C.....	6, 6, 1906		70.9
Hahnemann Med. Coll., Chi., Ill.....	2, 4, 1876	34.0 plus 15	49.0
Ky. School of Med., Ky.....	7, 13, 1906		66.1*
Louisville Med. Coll., Ky.....	3, 8, 1895	74.1 plus 5	79.1
Med. Coll. of Ohio.....	3, 8, 1883	69.9 plus 10	79.9
Miami Med. Coll., O.....	6, 1, 1908		71.8
Pulse Med. Coll., Ohio.....	3, 27, 1894	51.5 plus 5	56.5
Rush Med. Coll., Ill.....	2, 20, 1883	65.0 plus 10	75.0
Rush Med. Coll., Ill.....	6, 18, 1902		70.9
Syracuse Coll. of Med., N. Y.....	6, 12, 1893	70.8 plus 5	75.8
Univ. of Louisville, Med. Dept., Ky.....	3, 14, 1892	68.4 plus 5	73.4*
Univ. of Nashville, Tenn.....	3, 27, 1902		71.7
Western Reserve Univ., Ohio.....	3, —, 1879	65.3 plus 15	80.3

## Osteopathy—Passed.

Am. Sch. of Osteopathy, Mo.....	5, 31, 1910		85.7
L. A. Coll. of Osteopathy, Cal.....	6, 2, 1910		82.2
L. A. Coll. of Osteopathy, Cal.....	1, 27, 1910		79.4*
L. A. Coll. of Osteopathy, Cal.....	6, 2, 1910		77.7*
L. A. Coll. of Osteopathy, Cal.....	6, 3, 1909		77.5**
L. A. Coll. of Osteopathy, Cal.....	6, 3, 1909		76.9*
L. A. Coll. of Osteopathy, Cal.....	6, 2, 1910		76.6*
L. A. Coll. of Osteopathy, Cal.....	6, 2, 1910		76.5
L. A. Coll. of Osteopathy, Cal.....	1, 27, 1910		75.0*
Northern Inst. of Osteop., Minn.....	6, 1, 1897	73.0 plus 5	78.0***
Pac. Coll. of Osteopathy, Cal.....	2, 3, 1910		82.5
Pac. Coll. of Osteopathy, Cal.....	2, 3, 1910		79.9**
Pac. Coll. of Osteopathy, Cal.....	6, 23, 1910		79.5
Pac. Coll. of Osteopathy, Cal.....	6, 23, 1910		78.7
Pac. Coll. of Osteopathy, Cal.....	6, 23, 1910		76.0

## Osteopathy—Failed.

L. A. Coll. of Osteopathy, Cal.....	6, 2, 1910		72.7
L. A. Coll. of Osteopathy, Cal.....	6, 2, 1910		72.3*
L. A. Coll. of Osteopathy, Cal.....	1, 27, 1910		71.8
L. A. Coll. of Osteopathy, Cal.....	6, 3, 1909		70.6**
L. A. Coll. of Osteopathy, Cal.....	6, 2, 1910		64.9
L. A. Coll. of Osteopathy, Cal.....	1, 27, 1910		59.0
L. A. Coll. of Osteopathy, Cal.....	1, 27, 1910		56.2
Pacific Coll. Osteopathy, Cal.....	6, 23, 1910		71.5
Pacific Coll. Osteopathy, Cal.....	6, 23, 1910		70.9
Pacific Coll. Osteopathy, Cal.....	6, 23, 1910		67.0
Pacific Coll. Osteopathy, Cal.....	6, 23, 1910		63.7
Pacific Coll. Osteopathy, Cal.....	6, 23, 1910		56.0
S. S. Still Coll. Osteop., Iowa.....	1, —, 1905		67.4

## New Licentiates.

Wm. E. Allen, L. L. Andrews, Wm. Bartosh, A. E. Boland, F. P. Bowen, Douglas Brown, E. M. Brown, M. L. Burns, R. O. Butterfield, M. F. Carmichael, W. H. Chapman, A. T. Charlton, E. Collar, M. L. A. Colloran, B. J. W. Comstock, E. M. Cook, M. S. Crosswell, M. L. Davie, A. R. Elder, E. S. Fogg, A. Gottlieb, R. W. Graham, A. H. Hall, A. E. Hansen, Lasher Hart, L. E. Heiges, G. S. Hollister, John Janss, Walter C. Klein, S. L. H. Lamb, B. E. Loehr, W. M. McMullen, E. C. Mann, R. J. Mapes, H. F. Markolf, O. A. F. Moore, Jas. T. Murray, Oran Newton, B. Palmer, L. H. Peters, C. E. Phelps, G. L. Prentice, W. A. Preston, H. C. Reynolds, R. W. Reynolds, W. M. Robinson, T. L. Rogers, W. T. Rothwell, L. N. Sickler, W. E. Simpson, B. K. Skinner, M. A. Stephenson, E. V. Sutton, P. E. Swift, J. W. Utter, G. S. Wells, E. A. S. Werner, O. G. Wicherski, E. D. Wilcox, A. J. Wilkinson.

\* Taken before.

### OPPOSITION TO OUR DEFENSE PLAN.

The agents of at least one commercial company, we are told on good authority, are spreading the startling information throughout the state that there are so many malpractice suits now in actual progress that to pay for their defense would take several times the amount of money the State Medical Society will raise. If this were true it would mean the premature end of our defense plan, but these agents tell only part of the truth.

The expense to the individual of defending a malpractice suit is the amount which the attorney thinks he can collect, and this is the expense quoted by these agents. If the commercial companies did not have the same advantages we do as a Society, they would be bankrupt. But banded together as we are, our Society can and does pay a leading law firm a fixed annual retainer to brief the law and supervise the work of the local attorneys. This firm has all court decisions relating to medical malpractice always ready to be used in any court in the state. It will readily be seen that this removes the item of greatest cost in defending such suits, and leaves simply court costs and local attorneys' fees. All local attorneys are engaged by our general attorneys and paid regular per diem fees, rather than the inflated ones which a successful lawyer might think he could collect from his happy client. Our by-laws provide that if in any year the defense fund becomes exhausted, the Council may loan sufficient funds from the treasury of the State Society, thus giving us additional resources.

Now why are the commercial companies trying to foster doubts as to the efficiency of our plan? They are making a business of doing the same work, in the same way we are now doing it, and for profit, charging ten to fifteen times as much for the services. If mutual plans prove successful a large slice will be cut out of their annual "melon." This same state of affairs obtains in some fifteen or twenty states where the State Medical Society is successfully defending its members from civil malpractice in its various forms.

One can readily see that with their field being invaded in such a wholesale manner, the Commercial Medical Defense Companies must either stop the progress of this move, or go into other business soon. Fifteen or twenty states being removed from their territory is alarming, and these companies may be expected to hold on to every risk they have, and not to be too particular about the method used.

It is hopeful that our members will watch the working of this plan of our State Society for another year or two at least, before they listen seriously to all the cries of "wolf," especially when so many other states had carried this plan to a successful issue before we began it, and especially when it "sounds so good" that nearly twenty states are with us in this newest activity.

Almost 75 per cent of the money collected for Medical Defense in Michigan this first year remains in the treasury as a sinking fund. Does this look like bankruptcy?—Journal of the Michigan State Medical Society.

### NEW HOSPITAL FOR POST-GRADUATE MEDICAL SCHOOL.

Work has been commenced on the new building for the New York Post-Graduate Medical School, which is to cost \$600,000, making the institution's capacity about 400 beds. It is to be twelve stories in height and will have several novel features. The building will include a tower, with rooms for fifty private patients, and on the roof of the tower will be a pavilion for open-air treatment. There is also to be a loggia, open to the street front and to the rear, on three floors, where beds can be kept permanently with exposure to the air. In addition, there will be three long balconies to the eastward, and the entire top of the main building, seven stories high, with the exception of the space taken up by the tower, will be occupied by a roof garden, so that it can be seen that unusual provision will be made for giving the patients abundance of fresh air. There are to be eight operating rooms, 18 by 20 feet in size, but no large amphitheater for operations, as it is believed that the best results can be obtained by having small numbers of students in proximity to the operating table. There will, naturally, be well-equipped laboratories for research work, and special attention will be paid to the investigation and teaching of tropical diseases. After the new building is completed the present quarters of the Post-Graduate, adjoining, will be rearranged, and the nurses' home in connection with the institution is to be rebuilt at a cost of \$100,000.

#### New Members.

Brusco, H. D., San Francisco.  
 Mervy, E. C., San Francisco.  
 Nahman, A. H., San Francisco.  
 Eastland, Orin, San Francisco.  
 Johnson, W. B., Chico.  
 Tupper, R. B., San Francisco.  
 Mugler, F. R., San Francisco.  
 Ochsner, R. L., San Francisco.  
 Leavitt, E. I., San Francisco.  
 Dawson, C. W., San Francisco.  
 Taylor, C. E., San Francisco.  
 Craig, L. A., San Francisco.  
 O'Neal, R. Mc W., San Francisco.  
 Graham, H. B., San Francisco.  
 Stone, B., San Francisco.  
 Hartman, G. W., San Francisco.  
 Thomas, J. B., Santa Cruz.

#### Retired.

Flint, Wm. H., Santa Barbara.

#### Deaths.

Spurgeon, Franklin, Chico.  
 Wheat, J. M., Redlands.  
 Gallimore, Elizabeth, San Jose.  
 Frost, James, Sacramento.  
 Anderson, Charles Lewis, Santa Cruz.  
 Cowan, Charles S., Fort Jones.  
 Willis, George O., Grass Valley.  
 De Vinny, C. L., Santa Cruz.  
 Hattie, Granger Hunt, native of Calais, Maine; pioneer of San Francisco since 1853, died December 25, 1910. Mother of Dr. Reuben H. Hunt of this city.



# California State Journal of Medicine.

Owned and Published Monthly by the

Medical Society of the State of California

PHILIP MILLS JONES, M. D., Secretary and Editor

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## IMPORTANT NOTICE!

All Scientific Papers submitted for Publication must be Typewritten.

Notify the office promptly of any change of address. In order that mailing list and addresses in the Register may be corrected.

VOL. IX                      MARCH, 1911.                      No. 3

## EDITORIAL NOTES.

Perhaps it is a good thing that, when the human breast begins to swell with pride, some graceless thorn comes along and punctures the swelling; we cannot get quite the amount of proudfulness we would sometimes crave. Which may be another way of saying that "a few fleas are good for a dog." Our friends and colleagues in the Southland take great pride in the *Los Angeles Times* and they brag about its influence in keeping Los Angeles an "open shop city" with nary taint of unionism in it. But just ask them about the attitude of the *Times* on things medical, and the pride seems to fade away and become as though it were not. The *Times* is owned and run by an antiquated gentleman, "General" (political) Otis, by name. When he was a "General" in the Philippines he had the nickname among officers and privates of "Mex" Otis. The "Mex" is a term used to refer to anything that is like the Mexican silver dollar, below par. "Mex" Otis seems to have had two passions in life; an undying hatred of labor unions and a thoughtless adoration of the Republican party. Incidentally, and of less moment, he has shown a decided antipathy to the medical profession, to everything pertaining to medical science or anything related thereto. It is generally believed that the *Times* never lost an opportunity to "hammer" the medical profession, singly or collectively. No other paper in the world would print the stuff that the *Times* does; no other

paper in the world would print every Sunday the awful, inane, brainless, ethelized ravings that the *Times* does under the caption of "Care of the Body," "Practical Hygiene." In the "Care of the Body" columns, every Sunday, the *Times* prints the most wonderful and fearful mixture of twelfth-century quotations, interspersed with the personal maudlin-like comments of a curious individual named Harry Brook, "N. D." Were it not that there are such a lot of silly people always ready to believe anything they see in print, these vaporings would be but a huge joke. It is difficult to imagine a combination, other than that of "Mex" Otis and the *Los Angeles Times*, that would stand for the freak things that emanate from Harry Brook and disgrace any publication of the twentieth century.

Some people seem to have a peculiar idea of their real place in the world of work; they seem to think it is their duty or their right or

**ADVERTISING** their prerogative to run other  
**AGENCIES.** people's affairs for them. Thus

the life insurance companies, a few years ago, considered it their duty or their right to fix the fees which physicians should charge for making examinations for life insurance. Most of them have gotten over that idea; the New York Life still is possessed of the obsession, however, and therefore it should receive the condemnation of every reputable physician; if all would follow the example of the physicians in San Mateo County, the New York Life would wake up. Some advertising agencies are good enough to offer your JOURNAL an occasional advertisement at most ridiculous rates; it might be suspected that the advertiser was paying regular rates to the agency and the agency "appropriating" (that is a mild word) most of the amount. Be that as it may, we desire to take this opportunity to say to such agencies that we are not a hold-up game, we are not an object of charity, we have not the official hat extended for receiving stray pennies of the charitable passing, nor yet are we an eleemosynary institution. We have definite advertising rates; we are glad to print proper advertisements at those rates; we deliver the goods we agree to deliver; we do not ask any favors from anyone; advertising is a business proposition and we are in the publishing business—we are not here to be a party to the scheme of helping someone else get money from an advertiser for that someone's own personal benefit. We may add that this simple policy pays. A number of our advertisers have recommended this JOURNAL to other advertisers; a large number of our readers have responded to our request to consider this question of advertising, have read the editorial notes on the subject from time to time, make it a rule to look through the advertising pages, and find that it is distinctly to their advantage to do so. Recently an advertiser wrote us that he had made a number of excellent sales from his advertisement in one issue, and stated that three or four people had voluntarily referred to an editorial on the advertising question. "It pays to advertise"; yes, and it pays to read advertisements. Do it; read those in your own JOURNAL.

Is medicine making such rapid advances that an opinion which is correct to-day will be incorrect six months hence? Are we **PROGRESS OR CARELESSNESS.** advancing so rapidly in all matters pertaining to general medicine that a paper written this month will be obsolete a year from now? There are a few well-defined and specific medical conundrums the answers to which we seem to be within hope of securing before long; and in a few other directions distinct advances are made at frequent intervals. But speaking generally, is it so? These questions are prompted by several requests that have been received to return manuscript sent in to the JOURNAL for publication six or eight months ago. (Parenthetically, it may be remarked that the pressure on the columns of the JOURNAL was never greater than during the last year; some papers had to be held back for quite a while.) But why should a man who read a paper before some society last June, now think that the paper ought not to be published because it is a few months old? If it was worth writing and presenting at that time, is it not worth reading to-day? And if it is not, then what is the reason? Was it a good paper when read? Has medical science advanced so far, in the few intervening months, that what was true then is untrue now? It would hardly seem to be so. One is naturally loath to suggest that this peculiar condition of things could be due to carelessness on the part of the authors; and yet, aside from some single point about which an added word may have been said recently, it is about the only plausible explanation. Things like "606" do not come along every day to make men recall the opinion of yesterday. (Again, parenthetically, we may ask whether some of the present-day expressions of unbounded faith in "606" will not be regretted in six months' time; already reports of unexpected happenings are accumulating.) It is well to be a little "slow in the head"; if you are right to-day, you will be just as right a year from now; if science has advanced in the year beyond the world's knowledge of to-day, you need not be ashamed of it.

Occasionally, as the centuries have come and gone, a great truth has been voiced only to be clamorously quashed by the tumultuous outcries of the incredulous. **INCREDULITY VS. GREATNESS.** Thus we have reached a condition in which the mass of the people, when any would-be great truth is announced by a would-be discoverer and is met by incredulity, assume that the incredulity is an unequivocal acknowledgment of the truth underlying the discovery. To call attention to the fallacy of this line of argument seems quite superfluous; and yet it is an argument that has a tremendous sub-conscious influence on a great many people; the argument of analogy is the most subtle and the most fallacious of all arguments; therefore it is the most dangerous. All of which is suggested by some occurrences in

the San Francisco County Medical Society during the past two months. A certain physician claimed that he had discovered a wonderful vaccine with miraculous powers of a curative nature over everything from acnae to typhoid fever, including "house-maid's knee." The vaccine apparently consisted of a miscellaneous collection of germs, in more or less haphazard proportions, measured not by cubic centimeters but by so many "whisky flasks," and also containing some ingredient or ingredients which the "discoverer" was not prepared to announce, as he had turned the "discovery" over to a pharmaceutical house, for manufacture and exploitation. It is truly possible that a great truth may lie concealed in the "whisky flasks" of cultures; all things are possible. But that is not to say that all things are true—or even probable. It is difficult to see how such a dubious question could come before a learned society and excite its members to the extent which this question did, except on the assumption of the general tendency to believe that incredulity must necessarily mean discovery.

If the dicta of the "Care of the Body" columns in the *Times* were written late at night and under the stimulus of wormwood or ethylated decoctions, one could understand it all; but presumably they are not so written. At any rate they are, apparently, published in good faith and not as "Joe Miller" notes. Listen to the words of "science" as they flow from the Brook in Los Angeles: "All disease is an effort of nature to expel from the system morbid matter . . . it should be encouraged, instead of being suppressed."

" . . . the injection of filthy animal virus into the blood, a practice that has now been going on for a number of years, has been a contributory cause to the great increase in later years of such an awful disease as cancer, and to the rapid spread of the 'great white plague.'" And this in view of the wonderful fall in the death rate from diphtheria alone! Congratulations, "Mex"!

" . . . the modern medical theory of germs is a colossal error that has led to an immense amount of false treatment and unnecessary deaths."

Of course all this has no relation whatsoever to an advertisement which appears on the same page and in the next column, in the *Times*:

"Hygienic Advice by Mail. By Harry Ellington Brook, N. D., Editor Care of the Body. How to cure yourself of chronic disease by the Natural Method. For particulars and terms, send stamped, directed envelope to Harry Ellington Brook, P. O. Box 612, Los Angeles."

This is probably the only instance on record of a newspaper openly giving its reading columns to the promotion of a quack. It would be worth while for the Post Office people to look into the matter with the object in view of issuing a fraud order against this person who, for "terms" will tell you how to cure yourself of "chronic disease." No one in the world but "Mex" Otis would "put this over." Too much pride is not good for anyone.



**PRELIMINARY PROGRAM OF THE**  
**FORTY-FIRST ANNUAL MEETING OF THE MEDICAL SOCIETY OF THE STATE**  
**OF CALIFORNIA, SANTA BARBARA.**  
**APRIL 18TH, 19TH and 20TH, 1911.**

**Notice:** The meeting is to be held at the Hotel Potter where special rates on the American plan have been made for our members.

**Railroad Rates.** The usual rate of one and one-third fare for the round trip will be in force. Pay your full fare for the going ticket and be sure to get a receipt certificate, which must be signed by the Secretary at Santa Barbara. The return ticket will then be sold to you for one-third fare.

**Reservations** for rooms should be made as soon as possible so that the hotel may properly take care of your comfort. Address the Hotel Potter, Santa Barbara.

Remember the date—April 18th, 19th and 20th, 1911.

**Session on Eye, Ear, Nose and Throat.**

- "The Eye in Its Relation to General Medicine"  
.....Dr. Herbert C. Moffitt, San Francisco
- "The Value of Wassermann Reaction for the  
Eye, Ear, Nose and Throat Surgeon"  
.....Dr. Kaspar Pischel, San Francisco
- "The Eye in Its Sensiological Aspect".....  
.....Dr. William E. Blake, San Francisco
- "Report of a Case of Carcinoma of the Eye-lid"  
.....Dr. Hugo A. Kiefer, Los Angeles
- "The Value of the Graphic Method in the  
Study of Speech Defects".....  
.....Dr. Henry Horn, San Francisco
- "Report of Case of Mikulicz Disease".....  
.....Dr. James A. Black, San Francisco
- "A Résumé of the Modern Operative Proce-  
dures of the Ear".....  
.....H. B. Graham, San Francisco

**Session on Internal Medicine.**

- "Some Types of Intestinal Indigestion in Chil-  
dren".....Dr. R. L. Porter, San Francisco
- "Intestinal Indigestion in Adults".....  
Drs. E. Schmoll and W. C. Alvarez, San  
Francisco.
- "Intestinal Indigestion from a Surgical Point  
of View".....Dr. Rae Smith, Los Angeles
- Discussion opened by Dr. Dudley Fulton,  
Los Angeles.
- "Medical Aspects of Vaccine Therapy".....  
.....Dr. Herbert C. Moffitt, San Francisco
- "The Wassermann Reaction in Various Dis-  
eases".....Dr. H. R. Oliver, San Francisco
- "Clinical Types of Osteo Arthritis of the Spine"  
.....Dr. C. M. Cooper, San Francisco
- "Arteriosclerosis; Review of Cases".....  
.....Dr. Donald Frick, Los Angeles
- "The Relation of the Tonsils to Tubercle  
Bacilli".....Dr. Carl C. Warden, Los Angeles
- "The Treatment of Hemoptysis in Tubercu-  
losis".....Dr. Max. Rothschild, San Francisco
- "Relative Insufficiencies of the Myocardium"  
.....Dr. H. D'Arcy Power, San Francisco
- "Substances Derived from Leucocytes and Their  
Protective Value".....  
.....Dr. Hans Zinsser (by invitation)

- "The Experimental Basis for Vaccine Therapy"  
.....Dr. F. P. Gay (by invitation)

**Session on General Surgery.**

- "The Surgical Significance of Papillodema"..  
.....Dr. Leon W. Mansur, Los Angeles
- "The Diagnosis of Certain Peculiarly Situated  
Intracranial Growths".....  
.....Dr. Thomas J. Orbison, Los Angeles
- "The Indications, Technic and Results in De-  
compressive Operations".....  
.....Dr. Wallace I. Terry, San Francisco
- "Report upon Studies of Hydrocephalus, Cases  
Number Two and Number Three".....  
.....Dr. Harry M. Sherman, San Francisco
- "The Surgical Management of Subtentorial  
Cysts and Tumors".....  
.....Dr. Andrew Stewart Lobingier, Los Angeles
- Discussion opened by Dr. Stanley Stillman, San  
Francisco.
- "Left Sided Colon; Failure of Rotation of the  
Primary Gut".....  
.....Dr. Emmet Rixford, San Francisco
- "Acute Hydro Nephrosis; Operation; Spec-  
imen".....Dr. William A. Edwards, Los Angeles
- "Intestinal Hemorrhage in Hernia".....  
.....Dr. Rexwald Brown, Santa Barbara

**Session on Nervous and Mental Diseases.**

- "The Treatment of Tic in Children".....  
.....Dr. E. C. Fleischner, San Francisco
- "Educational Methods in the Mentally Defec-  
tive".....Dr. J. Ross Moore, Los Angeles
- "Mental Hygiene and Prophylaxis".....  
.....Dr. G. V. Hamilton, Santa Barbara
- "A Clinical Study of Korsakow's Disease"....  
.....Dr. A. W. Hoisholt, Stockton

**Session on Obstetrics and Gynecology.**

- "Pus Tube Complicated by Ectopic Gestation  
with Report of a Case".....  
.....Dr. E. M. Lazard, Los Angeles
- "Prophylaxis of Toxemia During Pregnancy"  
.....Dr. Titian J. Coffey, Los Angeles
- "Caesarian Section; Report of a Series of  
Cases".....Dr. M. L. Moore, Los Angeles

It has been recognized for many years that the line of demarcation in senile or presenile forms of arterial gangrene is not a safe point at which to amputate. Above the dead zone there is an ischemic area marked by great pallor, which will inevitably lead to sloughing if it be chosen as the point of election in surgical intervention. The test proposed by Moszkowicz of Vienna in 1907, and which has recently been commented upon at length by Matas of New Orleans, marks a distinct advance in our ability to determine just where to amputate; Bergmann, in Lexer's Clinic, Mendelsohn, Konigsberg and Crile have all confirmed the value of this hyperemic test, as it may well be called. The procedure is as follows:

The limb being rendered ischemic by elevation and by the application of an Esmarch bandage in the usual manner to the groin, several turns of the constrictor are made and the arterial blood supply shut off for a period of five to ten minutes. The tourniquet is then quickly loosened and this is followed by the well known hyperemic blush which travels down the limb.

This blush proceeds rapidly until the obstructed territory is approached, where its progress becomes slow. The lowest point reached by the hyperemic blush is the lowest limit of safety for operation. Amputation must be made well within the hyperemic territory.

The value of Moszkowicz' work is due to one important fact which he established, that the hyperemic blush extends to the level of the obstruction in the main artery of the limb. This he determined experimentally by means of injecting colored fluids into the vessels of a cadaver, after tying the main artery at various levels; it was found in all cases that the skin was discolored by the fluid down to the point at which the main artery was tied, but not beyond it. In a recent operation for gangrene of the foot, in the service of Dr. Sherman at the University of California Hospital, this test proved most satisfactory. It was further determined that a thrombus was present in the popliteal at the point to which the hyperemic blush had extended. So far this principle has been applied mainly to determining the line of amputation in cases of gangrene, but Matas has gone a step further by adapting it to the purpose of testing the collateral circulation in cases of aneurism. In his recent article "Testing the Efficiency of the Collateral Circulation" *Annals of Surgery*, January, 1911, he makes this important observation: "In healthy normal limbs, the occlusion of the main artery of a limb does not, necessarily, suppress the hyperemic wave in the distal

parts below the obstruction, as long as the collaterals are pervious and sufficient to carry the blood beyond the level of the obstruction in the main artery."

R. R.

*Collier's Weekly* has at last begun the publication of a series of articles by Will Irwin, on the newspapers of the United States.

**NEWSPAPER INFLUENCE.** The foreshadowing of the first article indicates that the series will be much read and discussed. To

anyone who loves to study the interesting problems in the world about him, and particularly the quiet, profound changes that are constantly occurring or in process of development, these articles will be of great interest. The influence of the newspaper, Irwin truthfully points out, was never greater than it is to-day, though the influence of the editorial columns is practically dead. The newspaper has changed its method as a man changes his clothes; the black "Prince Albert" of newspaperdom has been put away and a "natty" suit of business tweeds has taken its place. Newspapers to-day have a great influence through the news that they print—or do not print—and the color which they give to it. But the newspapers are slow to accept what has been forced upon all reputable periodicals except the daily papers—responsibility for advertising. In the end, it will be the advertisers who will force the newspapers to a cleaner policy in this respect; decent advertisers will not patiently continue to have their announcements sandwiched between patent medicine and lost manhood frauds. This changed policy of the daily press in regard to news has had another and a very profound effect; it has educated the public in many ways, and the public now insists that the process be continued. Not so many years ago, hardly a paper in the country would have printed such stories as the connection of Aldrich, maker of tariff schedules, with the rubber trust (one is tempted to write it "robber trust"); as the connection of Sherman with the Indian land frauds. The people are learning their power; the newspapers are powerful, but the people who make the newspapers are still more powerful—and they are waking up to that fact. Advertising is a necessary adjunct to publication, and a very valuable one; it is valuable to the reader and to the buyer. Big advertisers know this and are advertising in big ways. A certain manufacturer of tooth paste is spending hundreds of thousands of dollars advertising the fact that conservation of health is conservation of our greatest national resource; and keeping the teeth clean helps a lot. Read the advertisements in your own JOURNAL; they are all good things; we are responsible; it will pay you and it will pay the advertiser.



The Viavi fake, being, as it is, such a monumental one, and so very profitable to those admirable citizens and pious gentlemen, the Law brothers, has created many would-be similar fakes. A short time ago we referred to one—Pond's tampons. There are many of them and from some things that seem to act as straws in a breeze, "olivoint" would appear to be headed in that direction. The Millennial Medical Company, with its "millennial medicated capsules," is certainly in the list, if one may judge from a circular recently distributed. But these little fellows are just clumsy; true, they may be also deadly, as when they imply that cancer may be prevented or cured by the use of their stuff. They all forget that what has made the monumental success of the Viavi fake is not the fake itself—it is the keen, shrewd, cunning brain of the little Law brother, one of San Francisco's most wealthy and distinguished citizens. It is not the three little shells and the elusive little pea that are so valuable to the "shell game" faker; it is the dextrous way in which he works the fake. The promoters of these clumsy imitators of the Viavi fake will never get to be directors of the Young Men's Christian Association; they have not the guiding genius of the little Law brother to manipulate the fake; and you can bet he would not rub "viavi cerate" on his belly if he had appendicitis!

From the Department of Commerce and Labor, Bureau of the Census, comes a little vest-pocket pamphlet with the title "Physicians' Pocket Reference to the International List of Causes of Death." (Comment for thought: There is nothing pertaining to medicine or public health that comes to medical men from a medical or public health department of the national government. Matters of medical or public health interest percolate through the Department of Agriculture or the Department of Commerce and Labor or the Treasury Department. Everything is worth something, commercially, except life and health!) To make a guess at the probable truth, this little booklet is the result of the trying problems presented in compiling the last census rather than a voluntary effort on the part of the government to advance or in any way promote medical science or the public health. But whatever the reason for its publication—and one should not "look a gift horse in the mouth"—it ought to be in the possession of every physician in the United States and it ought to be carefully read—and followed as closely as may be. If one were to follow some of the suggestions closely, he might, at times, be somewhat prolix. For instance, in answering specifically and in detail No. 35: "Disseminated Tuberculosis (Specify organs affected)." One is reminded of a distinguished member of the Society who, some years ago, reported the post-mortem findings in a case of leprosy in a Chinaman who had been under the observation of this physician for a number of years. The gentleman in question, in presenting the specimens, was very apologetic. *He stated that the post-mortem had been performed in a small hut and in*

*very hot weather and therefore he was able to bring with him, and present to the Society, ONLY the brain, the spinal cord, the right arm, the left hand, the right foot and a few miscellaneous specimens of dermatic lesions!*

The old fight for merely decent compensation for making examinations for life insurance risks is by no means dead. Only a few months ago it was brought very much to life in San Mateo County. The New York Life Insurance Company, one of the richest and one of the oldest and worst offenders in the matter of cutting fees, had refused to pay a minimum of \$5.00 to a member of the Society who had been its examiner. He refused to accept the proffered \$3.00, declined to make any more examinations for that company and reported the whole matter to the Society at a regular meeting. Physicians are so easy-going in all their personal business matters that they have made themselves the prey of almost any one who may undertake to impose upon them. It would have been so easy, a few years ago when the New York Life started this cut-rate insurance fee business, if all the examiners had absolutely refused to accept the reduced fees or make the examinations, and if the newly appointed examiners had done the same thing. Now, however, it is different. Some of the companies have so much money and so much business that they do not care very materially whether they get any more or not. But the arrogant New York Life would come to time if all the physicians in the country would refuse to make examinations for \$3.00.

The suit against Dr. Rae Smith, of Los Angeles, for \$50,000 for malpractice, was recently fought out in the courts, the verdict being for the defendant, Dr. Smith, the jury taking about ten minutes in coming to their decision.

It is said to be one of the most remarkable suits in the history of American jurisprudence. It consumed nine days in the trial and the plaintiff, during the course of the suit, submitted to an operation in order to demonstrate that he did *not* have a tumor in his abdomen which some half-dozen or more physicians testified *did* exist and which two physicians testified did not exist. So confident was he in his own judgment that he insisted upon the operation; the tumor was found to be present, and the man who, previously, was fairly comfortable (with a colostomy, to be sure), has sacrificed his life. This is the first suit to be tried in court and defended by the Medical Society of the State of California under our Medical Defense plan, and the outcome is gratifying in the extreme. The attack upon Dr. Smith, whose treatment was absolutely correct, was exceedingly bitter and it is most unfortunate that the daily papers, which gave considerable space to the melodramatic incidents of the trial, should not have given as much space to the final decision of the jury and the vindication of Dr. Smith.

## ORIGINAL ARTICLES

## "ACUTE CHOLECYSTITIS."\*

By WM. WATT KERR, M. D., San Francisco.

In response to your request for some remarks about acute cholecystitis, I shall not attempt a description of the disease, but simply discuss some of the topics that come into the physician's mind when he is at the bedside with his patient.

*Etiology:* Nearly all cases of cholecystitis are due to the presence of micro-organisms. It is true that a traumatism may cause some inflammatory trouble, but this quickly subsides unless some microbe avails itself of the diminished resistance in the tissues to aggravate and prolong the disease; and it has been shown experimentally that toxins alone may cause irritation of the bladder wall, even haemorrhagic in character, but in a very short time the process becomes microbic so that practically all cases of cholecystitis are associated with the presence of micro-organisms.

The microbes most frequently found in the inflamed gall cyst are the typhoid bacillus, the colon bacillus, the pneumococcus, varieties of streptococci and staphylococci, and, just as in affections of other tissues, there may be mixed infections where two or more organisms are present.

At first we would be inclined to imagine that the most frequent route for the infection to travel was directly up the ducts from the intestines, but there are reasons why this should not be the case. (1) The duodenum is generally free from bacteria during health, a fact that explains to some extent why colon bacillus infection is not more frequent, although we must admit that this may not hold true in disease. (2) The periodical discharge of bile into the intestine flushes the ducts and offers a mechanical obstruction to the ingress of microbes. (3) The comparative powerful contraction of the sphincter of the diverticulum of Vater presents another obstacle.

Since specific micro-organisms have been found in the general circulation in typhoid fever, pneumonia and various other diseases, it appears perfectly possible that these agents may be carried to the gall bladder and give rise to trouble, indeed this opinion has the support of experimental evidence, but the more frequent route is the portal circulation in which bacteria that have escaped the destructive influence of the intestinal epithelium, leucocytes, and lymphnodes, penetrate the walls of the ducts or gall bladder that have already been damaged by the toxins of the disease. This injury to the tissue wall seems to be essential before bacilli within the gall bladder can cause any harm, because typhoid bacilli are almost constantly present in the gall bladder in fatal cases of typhoid fever, while cholecystitis is not a very frequent complication of this disease. In all probability the healthy mucous membrane lining the gall bladder is as resistant to bacilli, reaching it directly from the intestines, *via* the large bile ducts, as is the healthy bronchial mucous membrane to inhaled organisms, and it is only when the endothelium is

injured by traumatism, biliary stagnation, or toxins and microbes attacking it from subendothelial tissues that the micro-organisms in the gall bladder can inflict any injury. This may explain why colon bacilli are frequently found in both healthy and diseased gall bladders, and why a cholecystitis due to the bacillus typhosus may not arise until ten or even twenty years have elapsed since the attack of typhoid fever.

The relation between cholecystitis and gall stones is a matter of considerable interest both from an etiological point of view and also in regard to treatment, because the symptoms of cholecystitis are not infrequently mistaken for those of cholelithiasis; surgeons have felt chagrined and patients have been rendered very indignant because an operation for the removal of gall stones has failed to discover any calculi. Gall stones are composed of cholesterol, calcium and bile pigment, alone or in combination with one another. At one time the view of Naunyn that the cholesterol in the calculi was obtained only from the endothelium lining the gall bladder was generally accepted, but this has been disproved by Bacmeister who has demonstrated that cholesterol is precipitated from the bile itself by chemical changes resulting from the action of the bacillus typhosus, the bacillus coli communis or other micro-organisms, and although endothelial particles from the gall bladder wall are not essential to the process, it is considerably hastened by their presence. This applies to pure cholesterol stones but not to those composed of lime and cholesterol, for in his opinion lime salts are an almost exclusive product of the secretory cells of the gall bladder. "As an amount greater than normal must be furnished to participate in the formation of gall stones, their presence signifies a catarrhal inflammation of the mucous membrane of the gall bladder." While therefore it is true that cholelithiasis maintains a mechanical irritation that permits the infection of the gall bladder and a consequent acute or subacute cholecystitis, it is nevertheless equally true that cholecystitis is responsible for the majority of cases of cholelithiasis with the result that the close relationship between the two often leads to symptoms being attributed to one condition which really belong to the other. There can be little doubt that the reputation enjoyed by many drugs in the treatment of gall stones is due to the fact that they relieve the cholecystitis but not that they dissolve the calculi.

An excellent example of this is in the following case of Mrs. D., age 38: I first saw her upon March 12, 1910. For many years she had suffered severe attacks of pain in the right hypochondrium and epigastrium which radiated downwards to both iliac regions but were most distressing on the left side. She had gone for months without any trouble, in fact she was perfectly free from pain during an interval of nearly six years, but it returned two years ago and gradually increased in severity so that instead of being present only for a few minutes, or at most two or three hours, it was now constant with occasional paroxysmal attacks, during which she was nauseated and could not retain food in the stomach. Her weight had fallen from 120 pounds to 87 pounds. The liver was large and tender, the gall bladder was distended below the umbilical line and very tender to pressure. Upon March 21st she was admitted to the Children's

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Hospital, where, in addition to local applications, the medication consisted of two drachms of the Elixir of Succinate of Iron three times daily together with a capsule containing Euonymin gr. ss. and Extract Cascara Sagrad and Pil. Rhei Comp. aa gr. IISS every night. She improved rapidly and left the hospital at the end of three weeks when she was perfectly free from pain but still had tenderness on pressure over the gall bladder, and had gained six pounds in weight. Four weeks later she began to suffer again from severe paroxysmal pains, which came on at intervals for four days and during this time she passed more than forty gall stones. Upon May 31 she was much more comfortable but still had tenderness over the gall bladder, with pain in the bowels from gaseous distension. In this case we have an example of a drug that allayed the cholecystitis and the patient's suffering so that she believed herself cured but did not have any solvent effect on the calculi.

In this connection Bain's experimental work upon the treatment of cholelithiasis should be remembered. He has shown that when gall stones are placed in the healthy gall bladder of dogs they disappear in about six weeks, while if a culture of bacilli coli communis is injected into the gall bladder and at the same time its walls are scraped so as to produce an infectious cholecystitis the stones do not dissolve. This not only bears out what was said a few moments ago about the influence of cholecystitis in producing calculi, but as Bain remarks, it indicates that in the treatment of gall stones we should endeavor to render the gall bladder healthy rather than attempt to dissolve the stones in situ by giving solvents which act upon the stones outside the body.

*Symptoms.* It is not possible to differentiate with certainty between the catarrhal, suppurative and gangrenous forms of cholecystitis; as in appendicitis, we can only infer the existence of one or other from the intensity of the symptoms. The number of adhesions about the gall bladder that are found at surgical operations and at post mortem examinations warrant the suspicion that mild attacks of cholecystitis are by no means uncommon and that they are so evanescent as to be overlooked by the patient, or that we ourselves on account of the absence of colic, jaundice or distended gall cyst, have misinterpreted the symptoms presented by the patient.

In the majority of cases the temperature is but moderately, if at all, increased, in fact, variations in the pulse rate are of more prognostic value than is the presence or absence of fever.

Pain and tenderness are important symptoms but vary in their distribution so as to make errors in diagnosis easily possible. The pain may be of a steady, dull aching character, possibly when the serous covering of the gall bladder is affected, but more frequently it is paroxysmal in character, resembling that of gall stone colic. It is most frequently felt a little way above the umbilicus and to the right of the median line, but at other times it is in the epigastrium, the right iliac fossa or diffused over a considerable area of the abdomen, or it may be referred to the right shoulder or a point below the right scapula. Occasionally the tenderness can only be elicited by dipping the fingers below the margin of the liver and pressing upwards towards the gall bladder. Full inspiratory movements are suddenly arrested by the production of severe stab-

bing pain similar to that experienced in diaphragmatic pleurisy, so that the real nature of the attack is not infrequently overlooked and the patient is supposed to be suffering from the latter disease. We cannot see many of these cases without wondering what causes the pain and why it is so erratic in its characteristics.

It is generally conceded that, like the stomach and intestines, the gall bladder is not sensitive to ordinary painful stimuli, and it is questioned whether the painful sensations are ever really felt in the nerves of the viscus itself, or whether an abnormal stimulus in the viscus is transmitted to the cord and there diffuses to adjacent pain nerves so that the painful sensation is felt not in the viscus but in the cutaneous distribution of these secondarily stimulated nerves; or it may be that, since the normal distribution of nerves to the several parts of the body is in harmony with promoting the functional activity of that part and protecting it from injuries to which it may be exposed, there is no necessity for the viscera being endowed with sensibility to the same tactile and painful stimuli as the body surface since they depend upon the abdominal and thoracic walls for protection against external agents. Perhaps, however, it is possible that abnormal processes going on in the viscera may give rise to abnormal stimuli which are capable of producing pain in the viscera themselves. Although the existence of true visceral pain in response to special stimuli is still a matter of doubt, there cannot be any question that the sensation is diffused to adjacent nerves in the cord and gives rise to cutaneous pain and sensitiveness in the area of their distribution; hence we find the radiating character of the pain and the tender nodes upon the body surface.

We notice two kinds of pain in cholecystitis, the paroxysmal and the continuous, and both of these are due to increased tension. In acute cholecystitis there may be some swelling or other condition causing narrowing of the lumen of the bile duct; this will tend to produce accumulation of bile or inflammatory exudate in the gall bladder and a spasmodic contraction of its muscular wall in an attempt to expel it, similar to what takes place when feces accumulate in the intestine, hence the paroxysmal pain. The continuous pain on the other hand is due to the increased tension produced by infiltration of the gall bladder wall itself. The radiation of pain in many cases can only be explained by the presence of adhesions between the gall bladder and other organs. It is very common in cholecystitis to have pain in the region of the appendix and this may be due to a variety of causes. (1) There may be an associated appendicitis arising from a simultaneous infection, or, as has been suggested, the infecting micro-organisms in a cholecystitis may be derived from an inflamed appendix. (2) The gall bladder is sometimes so enlarged as to reach into the right iliac fossa and give rise to the appearance of a perityphlitic abscess. (3) There may be adhesions between the gall bladder and the peritoneal covering of the intestine giving rise to intestinal disturbance most acutely felt in the region of the ileocecal valve. The following case is fairly typical of the appendicial pain found in these cases. In

September, 1909, Mrs. W., aged fifty, consulted me regarding pain in the region of the transverse colon and gall bladder, and informed me that some years ago she passed several biliary calculi. The area of hepatic dullness was normal but there was marked circumscribed tenderness over the gall bladder. Cholecystitis and cholelithiasis were diagnosed. Under treatment the distressing symptoms disappeared and the patient regained her usual health. On May 13th, 1910, after considerable excitement and fatigue, she was attacked with headache, nausea and vomiting; pain and tenderness in the upper right abdominal quadrant with a maximum over the gall bladder, also diffuse pain and tenderness in the right iliac fossa, including McBurney's point, but the most intense tenderness was in the skin over the crest of the ilium. The fever disappeared in twenty-four hours and the pain was much mitigated. In six days the pain had entirely subsided, there was not any tenderness in the iliac region, but distress was severe whenever the gall bladder was palpated. Evidently this was an acute exacerbation of a chronic case of cholecystitis with local parietal peritonitis over the enlarged gall cyst, and the pain was transmitted downwards in the cutaneous nerves, as a result of the peritonitis, to the crest of the ileum and iliac region. The absence of special tenderness over McBurney's point made it improbable that the appendix was involved.

The following case is also of interest: A. J., age 42, a laborer, complained of fever and nausea together with severe pain in the right hypochondrium which was aggravated upon any attempt to take even a moderately full inspiration. No marked enlargement of the gall bladder could be detected but there was extreme tenderness on palpation over it. In a few days the acute symptoms disappeared, but more or less pain and tenderness persisted over the gall bladder and increased in severity whenever the stomach was distended by a full meal or when the patient bent over forward. As this condition did not improve after about four weeks the patient was referred to a surgeon with a diagnosis of cholecystitis and cholelithiasis and the suggestion that surgical exploration of the gall bladder was probably the best course to pursue. It was with some chagrin that a few days later a message was received from the surgeon to the effect that I had made an error in diagnosis and had mistaken a case of chronic appendicitis for diseased gall bladder; that he had removed the appendix after finding some adhesions as evidence of old inflammatory process, that he believed the gall bladder to be healthy because while the patient was still under the anesthetic, he had introduced his finger into the abdominal cavity through the incision in the iliac region and reaching upwards failed to discover that it was particularly enlarged or contained biliary calculi. The patient returned to me within one month of his operation still complaining of pain over the gall bladder but refusing further operation, and from time to time I saw him during the subsequent three years still suffering from his attacks of pain but without his appendix. In this case I blame myself that knowing the frequent co-existence of appendicitis and cholecystitis, I did not make a more thorough examination in the vicinity of the ileocecal valve to discover whether there were any signs of the appendix having been injured in former attacks, and thus have been in the position to prepare the patient for the possibility of a double operation, and I blame the surgeon that with the history and diagnosis given him he should have satisfied himself with such a crude examination.

The pain in the shoulder is probably due to the

relationship between the phrenic nerve and a branch to the subclavius muscle.

It not infrequently happens that the patient suffering from cholecystitis cannot adopt certain positions without inducing pain and this is probably due to traction upon adhesions to the parietal peritoneum, or the pressure of other organs upon the diseased gall bladder. Thus when the patient lies upon his side there may be a dragging pain due to the weight of the liver making traction upon the adhesions and it is especially liable to occur where the abdominal walls are lax and do not give the normal support to the viscera.

The tenderness of the inflamed gall bladder to pressure is a prominent symptom and is somewhat difficult to explain when we are confronted with the fact that the healthy gall cyst is apparently insensitive to ordinary painful stimuli. Probably it is analogous to what was observed by Mackenzie in his well known case of bowel resection. He had to operate for the relief of umbilical hernia in a patient who refused to be anesthetized. After the abdominal cavity had been opened the rest of the operation was performed painlessly. Dr. Mackenzie says: "I was able to detach adhesions from the liver and bowel, to resect a piece of bowel and mesentery, and to stitch these structures without the patient experiencing the slightest sensation. But I found that he occasionally groaned with pain when I was not touching him, and watching to see the cause I found that the upper part of the resected bowel, which was laid on one side in a warm aseptic cloth, occasionally passed into peristalsis, contracting from a wide tube into a thick fleshy rod; when this happened the patient groaned with pain. I asked him where he felt the pain and he passed his hand invariably over the umbilical region. I started the peristalsis several times by slightly pinching the bowel, and each time the patient felt the pain. Here before my eyes was the cause of the pain, and the seat of origin of the pain was at least twelve inches away from the part in which the pain was felt." The argument is that pain in visceral disease is of a reflex character, the apparent impulse arising in the viscus and passing to the cord where, on account of its intensity or abnormal character, the stimulation extends to neighboring centers and from these, sends a sensory impulse to the brain, so that the resulting sensation is referred by the brain, not to the viscus, but to the peripheral distribution of the sensory nerve. This is described as a viscerosensory reflex and its object in such cases as the present is to call into play such structures as Nature has interposed for the protection of the viscus and hence we find the abdominal muscles over the gall bladder thrown into a state of tonic contraction and constituting another symptom or sign found in diseases of the abdominal viscera.

It is not always possible to palpate the gall bladder because unless there is some degree of obstruction of the cystic duct, the distension may be comparatively slight. As a rule, however, the lining of the cystic duct is swollen so that the inflammatory exudate cannot pass through it and consequently the gall bladder may be felt as a pear shaped mass generally movable from side to side, but occasionally



fixed in position by peritoneal adhesions. A condition, however, may arise that not only makes it impossible to feel the enlarged gall cyst but has led to errors in diagnosis. I refer to paralysis of the intestine caused by extension of peritonitis from the gall bladder to the intestine. This may give rise to local distention of the intestine so that the gall bladder cannot be detected by the most careful palpation, or the distended loop of intestine may lie across the neck of the gall bladder and give rise to a tympanitic area between the head of the tumor and the margin of the liver, but the fact that it moves up and down with the respiratory movements should make us suspicious of its real character. When the paralysis affects the hepatic flexure of the colon, the bowel is liable to become obstructed and distended, but the extreme tenderness upon palpating over the right hypochondrium indicates to some extent the origin of the trouble.

It is not uncommon to find a prolongation downwards of the right lobe of the liver in patients suffering from cholecystitis and the formation of this Riedel's lobe, as it is frequently designated, is regarded by some as being secondary to the gall bladder disturbance. I have seen several instances of this formation but as there was no opportunity of discovering when the enlargement commenced and as they all occurred in women, it has been a matter of doubt whether the two conditions were not produced by a common cause, such as the pressure of corsets rather than in the sequence of cause and effect to one another. The mere fact that the lobe grew smaller as the cholecystitis improved did not help to solve the question, as the treatment for each condition is almost identical.

*Treatment:* The medical treatment only applies to the catarrhal variety of cholecystitis. Rest in bed, and warm applications to the abdomen will be found of service in most cases. Occasionally it may be necessary to resort to the hypodermatic injection of morphin but from its tendency to cause constipation this should be avoided if possible and an attempt made to attain the same end by the use of poultices or compresses containing laudanum. The medicinal treatment demands that the bowels should be kept clear by means of mild laxatives, and remedies such as salicylate of soda, urotropin and methylene blue have been used on account of their supposed direct action on the gall bladder. My best results have been from the use of sodium glycocholate in five grain doses every night for three or four nights and repeated after an interval of five or six days, this intermittent administration being maintained for some weeks. At the same time desertspoonful doses of an elixir of succinate of iron, equivalent to five grains of the succinate, were administered. This last remedy does not appear to have the recognition that it merits, possibly because it was vaunted as a cure for gall stones which is very doubtful, as in all probability it has not any direct effect upon the calculi, but in view of Bain's experiments, mentioned in an earlier part of this paper, which showed that calculi could be dissolved in healthy bile, it is possible that in some instances where the succinate of iron relieved the cystitis small biliary calculi may have been dissolved in the bile. I have knowledge of patients who more than

twenty years ago were given this remedy on account of paroxysmal attacks of pain in the gall bladder, believed to be due to gall stones, and who have remained free from the attacks since that time. You may remember that in the case of Mrs. D., already mentioned, the patient was rapidly relieved from pain from which she had suffered continuously for months and subsequently passed a large number of gall stones; also that Mrs. H. experienced similar relief and was able to resume her duties within a very few days from the beginning of a severe attack; and the following additional case may be of service in further illustrating the therapeutic value of the remedy:

Case of Mrs. L. W., age 33. Consulted me on January 9, 1909, on account of pain in the right hypochondrium, which had been almost constant for the last eight months and was aggravated by coughing or deep inspiration. She could not lie upon her left side on account of this position producing a dragging pain in the right side. There was no enlargement of the liver nor of the gall bladder but pressure over the latter was painful. Her appendix was removed eighteen months ago. There was not any tenderness over the intercostal nerves, heart and lungs were normal, and the kidney was found in its normal position. The glyco-cholate of soda and the succinate of iron were administered as already described and on February 5, 1909, she reported as feeling perfectly well. I saw her in May, 1910, when she had a bilious attack but there was not any return of the gall bladder symptoms.

Many other cases could be brought forward but those already mentioned are sufficient to illustrate the beneficial results that frequently follow this line of treatment.

All cases of catarrhal cholecystitis do not yield to medical treatment, but many pass on to a chronic stage or rapidly become suppurative. In suppurative, phlegmonous or gangrenous cholecystitis there should not be any delay in adopting surgical methods, and even in cases which have become of a chronic catarrhal nature and cannot be relieved by medication, the question of operative measures should be considered just as in appendicitis, for there is always a strong possibility that calculi will form, and there is also the risk of recurrent acute attacks, any one of which may put the patient in jeopardy. Under such circumstances, the age, general condition of the patient, the severity and frequency of the exacerbations, their influence upon nutrition, must all have careful consideration and aid us in coming to a conclusion. It is not my province to discuss surgical technic, but I would only remind you that these operations can now be undertaken without the dangers consequent upon the use of ether or chloroform, by simply injecting into the abdominal wall in the vicinity of the proposed incision, a half per cent. solution of novocain to every twenty cubic centimeters of which one drop of a one in one thousand solution of adrenalin chlorid has been added. When injected in a proper way this produces perfect anaesthesia of the abdominal wall, and, as the viscera are insensible to ordinary painful stimuli, the gall bladder can be opened and drained without the patient experiencing any discomfort. This being the case there cannot be the excuses that formerly existed for advising delay.

## SYSTEMIC GONORRHEAL INFECTION.\*

By W. P. WILLARD, M. D., San Francisco.

The gonococcus may enter the blood, causing septicemia, and from the blood be deposited in favorable locations, producing inflammatory lesions. The literature on the subject shows that there is hardly a single organ in the body which may not become infected. Power reports a diffuse inflammation of the entire upper extremity due to a mixed infection by gonococci and staphylococci; Mazza a pleuritis, and so on from meningitis to an involvement of the skin on the sole of the foot. Why such entrance of the organism into the blood occurs in one case and not in another is hard to explain. A history of previous instrumentation in many of these cases suggests traumatic lesions of the mucosa as favoring general diffusion. Werthiem has demonstrated invasion of the veins with resulting thrombus, and Dreyer an involvement of the lymphatics.

Septic symptoms coming on in the presence of a gonorrheal urethritis should always be investigated, and it should be remembered that the amount of discharge is no factor. Often with the fever, sweats and depression of the systemic involvement, the discharge diminishes or may be absent. The primary focus may not be in the urethra, but in the prostate, vesicle or Cowper's glands. Systemic infections have been seen in infants with gonorrheal ophthalmia. In these cases a positive cultural test of the blood or joint fluid establishes a diagnosis, but unfortunately gonococci are very difficult to cultivate and a negative finding means nothing. I saw an analysis of a hundred cases in which only four gave a pure culture of the organism; in thirteen the culture was mixed and in eighty-three there was no growth. Although with improved technique we are getting better results in cultivating the gonococci, still a point has not been reached where we can absolutely rely on cultural tests. The blood picture does not differ from a septicemia caused by other organisms, showing as a rule a leucocytosis with an increase of the polymorphonuclear neutrophiles.

The fever associated with the primary disease is not an indication of systemic infection, but is probably due to the absorption of toxins. Often the symptoms suggest typhoid, which is at times difficult to exclude. Several observers have remarked the profuse sweats of gonorrheal septicemia. Thayer, in two of his cases, describes a diffuse eruption of reddish papules on the thorax and abdomen. The leucocytosis and absence of epistaxis and Widal are suggestive.

A case reported by Sherrer is of interest in this connection. A young soldier, who had been feeling

out of sorts for a few days, entered the hospital with chills, headache and severe malaise. These symptoms in the next few days were accompanied by dyspnoea, diarrhea and increase of temperature. He gave a history of a slight urethral discharge for two weeks, but his symptoms were ascribed to typhoid. The serum test was repeatedly negative. His condition became rapidly worse, a soft murmur at the mitral area developed and his pulse became dirotic. Six days after his entrance to the hospital there were further complications; the dyspnoea increased and mucous rales could be heard over both lungs. The following day a left pleural effusion developed, the fluid from which was rich in gonococci. He succumbed on the eighth day and post-mortem examination showed a gonococcic infection of the lungs, heart, pleura, peritoneum and urethra. The virulency of the infection in this case was not manifested before the systemic infection, as the urethral discharge had been very light.

Dieulafoy and others in cases that gave evidence of lung involvement have demonstrated gonococci in the sputum. Thayer demonstrated the organism in eight out of eleven cases of gonorrheal endocarditis. In arthritis gonococci can often be found in the joint fluid. The parts most often complicated in systemic gonorrhea are the heart and the joints.

Gonorrheal endocarditis is quite frequent and is a very serious complication. Some cases have been reported where the course was benign and the patient recovered with a crippled valve, but in most, the inflammation leads to proliferation and ulceration with the tendency to give rise to emboli. The left side of the heart is almost always affected and the aortic orifice is more frequently diseased than the mitral. A peculiarity of the heart sounds in these cases, as stated by several authors, is that they change very frequently in character and cannot be estimated with any degree of accuracy. Thayer reports cases in which the sounds during life suggested mitral involvement, yet at autopsy no lesions were found. Thomas had a case with marked vegetations on the mitral valves which gave no evidence on auscultation during life. Pericarditis has occurred and Councilman reported an acute gonorrheal myocarditis.

Articular involvements are the commonest of all and are disabling and serious complications. Many cases have been found in children with ophthalmia neonatorum. Males are more frequently affected than females and between the ages of twenty and thirty the most cases occur.

Arthritis usually comes on during the acute urethritis, but may occur during the subacute or chronic stage. In Northrup's cases three or more joints were affected in 175 cases, one joint in 56 cases. Joints that are rarely affected by rheumatism are usually attacked, as the sterno-clavicular, intervertebral, temporo-maxillary and sacro-iliac. The

\* Read at the joint meeting of the San Francisco Eye and Ear and the Urological Societies.



inflammation is often periarticular and extends along the sheaths of the tendons; more often the synovial membrane is affected. If fluid accumulates it rarely becomes purulent.

Osler describes several clinical forms.

(a) Arthralgic,—in which there are wandering pains about the joints.

(b) Polyarthritic,—in which several joints become swollen and tender.

(c) Acute gonorrheal arthritis,—in which a single articulation becomes suddenly involved, with severe pain and extensive edema.

(d) Chronic hydrarthrosis,—which is usually monarticular and very apt to involve the knee. It comes on without pain or swelling.

(e) Bursal and synovial form,—which attacks chiefly the tendons, the bursae and periosteum. The bursae of the patella, the olecranon and the tendo Achilles are most apt to be involved.

Gonorrheal exostoses of the os calcis usually occur between the ages of 18 and 30. Traumatism and occupation do not seem to be factors in their production. Some time after the urethral infection, usually from three to nine months, the patient complains of sharp, severe pains in one or both heels. The pain can be sharply localized in the center of the plantar surface of the heel and elicited only by weight bearing or direct pressure. The pain may incapacitate the patient. The gait is characteristic, the weight being borne by the ball of the foot with the heel raised. The os calcis is enlarged and thickened in most cases and the evidence of the radiogram establishes the diagnosis.

The liability of joint affections to recur as long as a focus of infection is present is illustrated by a case I now have under treatment.

Mr. A., age 32, traveling salesman. Always in perfect health until twelve years ago, when he contracted gonorrheal urethritis. This he treated by means of injections without much benefit for four weeks, then the left knee became involved. This was treated with salicylates, liniments, etc., and finally aspirated and was put in a cast. After being in the cast thirty days the pain became so intense on account of the reaccumulation of the fluid, that it had to be removed. After seven months of treatment he could again walk with a somewhat crippled joint. For four years he led a regular life and was free from trouble. Then after intercourse his discharge reappeared and with it an arthritis in the left hip, which lasted three months. Later on he noticed after intercourse a slight urethral secretion at times and has had the left knee, heel, cervical intervertebral and hip joints involved. One month ago he came to me complaining of stiffness in moving the jaw and a urethral discharge. On examination the secretion contained gonococci. A well-marked stricture of about 24 F. was found in the anterior urethra and the prostatic secretion contained many pus cells. He has developed arthritis of both temporomaxillary joints, as well as in the left knee and the metatarsal phalangeal joint of the great toe.

As all previous methods of treatment have been so unsatisfactory, we naturally turn to vaccine therapy as a panacea in these conditions. Although many good results have been obtained, still at times we are disappointed. Whether this is due to a worthless vaccine, a mixed infection or the attendant is often hard to determine. There is no doubt that

autogenous vaccines are more effective than stock vaccines, but they are often impossible to obtain.

Drs. Eyre and Stewart, who have done a great deal of work with vaccines, claim that the doses generally used are too large and advocate the use of doses not to exceed 25 millions. In systemic infections a dose of 5 millions is given every five days. Where there is a joint involvement, in twelve to twenty-four hours after an injection, the affected joint becomes more painful and sometimes more swollen and red. These symptoms correspond to the negative phase. After 36 to 48 hours these symptoms clear up and the movements become much freer. A vaccine that can be used in large doses with no effect should be regarded with suspicion and the possibility of a mixed infection should not be overlooked. The use of hot air and passive hyperemia in joint conditions is an aid. The original focus should always receive attention.

### ON THE RELIEF OF GLAUCOMA BY SUBCONJUNCTIVAL SODIUM CITRATE INJECTIONS.

By HAYWARD G. THOMAS, M. D., Oakland.

Pathologists and clinicians are agreed that glaucoma represents in essence a state in which the eye holds an increased amount of water. As we had best now regard it, it is in reality an edema, and the increased pressure brought about by this means accounts for all the clinical signs and symptoms observed in the condition. As generally held the increased amount of fluid contained in the eye in glaucoma is believed to be forced into the eye through such agencies as an increased influx or a diminished efflux of blood and lymph from the eye. The unsatisfactory nature of this idea is expressed in every text book of ophthalmology. Martin H. Fischer, in his work on edema, has given another interpretation of the phenomena observed. He maintains that the eye comes to hold an increased amount of water in glaucoma, not because more fluid is *forced* into the eye, but because changes take place within it which make it absorb more water than normal. He holds that the colloids determine the amount of water held by any tissue and defines glaucoma as a condition in which the normal affinity of the ocular colloids for water has been increased. This increase in the affinity of the colloids of the eye for water is brought about in either one or both of the following ways: First, through the production of acids within the eye; or second, through such changes in the colloids themselves as convert those having a low affinity for water into such as have a greater affinity. The necessary conditions for such an abnormal production of acids or such a change in the colloids of the eye are to be found in those illy grouped factors of arterio-sclerosis, syphilis, old age, primary inflammatory conditions, etc., that are generally looked upon as primarily responsible for glaucoma.

The clinical methods that we pursue in order to treat glaucoma divide themselves into the two groups of a systemic treatment which would combat an arterio-sclerosis, a syphilis, or what not, and a local treatment which in the aggregate is aimed at the mere reduction of tension within the eye. Upon this

local treatment especially great stress has of necessity at all times been laid, because of the disastrous results that follow the continuance of a high ocular tension for even a short period of time. Since Von Graefe's first writings on the subject iridectomy has been regarded as one of the best procedures to carry out in this condition. The years seem to indicate that this is not the ideal treatment for glaucoma. I may not be fortunate, but all the cases I have seen in my office or clinic, or in the county hospital, that have been operated on by various men are blind in the operated eye. Unless by accident a fistula into the subconjunctival space has persisted, an ordinary iridectomy does not seem to last long as a filtration project. In fact, an operation has recently been proposed for the purpose of producing such a permanent opening between the anterior chamber and the subconjunctival space. But making a leak hole in the anterior structure of the eye is a temporizing affair and at best a makeshift.

The fact that surgical procedures cannot always be carried out and that even when they can, iridectomies, sclerotomies, cyclodialyses, etc., do not give that permanent relief which is desired, has found expression in the more conservative methods of treating glaucoma that have been favored more recently. Hence the urging that we rely more assiduously on eserine, pilocarpin and dionin. But every ophthalmologist has all too often been confronted with glaucomas in which these means have proved entirely unavailing.

During the past year and half I have been using subconjunctival injections of sodium citrate to reduce the tension. Its use was suggested by the antagonism discovered to exist between the effect of acids and neutral salts on the imbibition of water by colloids. The method consists in the injection of from 5 to 15 drops of a 4.05% to a 5.41% solution of the chemically pure crystallized sodium citrate, preceded by the instillation of a cocaine and an adrenalin solution into the conjunctival sac. During this time I have treated in all nine cases of primary glaucoma, and two of secondary glaucoma. All but one occurred in women. As a group the primary cases were in individuals over forty-five, and concerned thin, ill-nourished women of sedentary habits. The effect of these injections in reducing tension was unfailing and without evil consequences. After each injection there was a relief of the symptoms of glaucoma for from three days to several weeks. The advantages of these subconjunctival sodium citrate injections over the other recognized surgical or medical procedures are evidently to be sought in their simplicity and in the promptness with which they produce results. Clearly these injections do not constitute a "cure" for glaucoma, but no more do iridectomies, sclerotomies, or any other procedures which merely aim to reduce tension. The cure for glaucoma clearly resides in the removal of those conditions which primarily led to the chemical changes within the eye which increased the affinity of the ocular colloids for water.

I would like to add a word regarding the cloudiness of the cornea observed in glaucoma. Fischer has found that this is not an edema, of the cornea,

but represents a precipitation of certain of the protein elements of the cornea. The same seems to be true of such opacities of the lens as are typified, for example by the ordinary senile cataract. In using the sodium citrate injections for the treatment of glaucoma, I found that lenticular opacities cleared up remarkably. A number of the cases that I have treated in this way will form the nucleus of a paper on cataract absorption. Such a result was anticipated because precipitates of the protein are partially reversible.

#### Discussion.

Dr. Martin Fischer, Oakland: I have been much interested in the remarks made here this afternoon, especially in the attempts to produce experimental glaucoma in living animals through the injection of acids into the eye. Dr. Franklin got a distinct rise in tension sometimes, and sometimes his injections were without apparent effect. The matter is, I think, easily explained. In judging of the effects of such procedure two things must be borne in mind,—first, the direct effect of the acid upon the ocular colloids; second, the inflammation that may be induced by the acid, and the effects of the chemical changes characteristic of an inflammation in affecting the colloids. If one of these consists in the production of acids in the tissues, then the effect of this acid is clearly added to the effect of that which has been injected. One need not be surprised to see that the direct injection of acid into the eye is not always followed by a glaucoma. Under normal circumstances, what we might call the immunity of the tissues to acids is very high. If now the injected acid is not too strong, and not too large in amount, the circulation through the eye may very well be able to absorb it all so quickly that no glaucoma, or only a very slight temporary rise in tension may result. I would suggest that these acid injection experiments be repeated in conjunction with some procedure which makes a rapid absorption less easily possible, such for example as ligation of the arteries supplying the eye. How rapidly the body is able to take care of an injected acid is clearly evidenced by the artificial wheals (urticaria) which I showed can be produced by stabbing the skin with a hypodermic needle dipped in formic acid. The wheals so produced come and go very quickly. The question was raised as to whether a so-called primary glaucoma is any different from a secondary glaucoma. Pathologically there is, of course, no difference, for a glaucoma for which we know the cause, and a glaucoma for which we do not know the cause, are in essence the same. Glaucoma is only an edema of the eye-ball, and an edema is an edema no matter what the cause. The classification of glaucoma into primary and secondary glaucoma, and the former of these into simple glaucoma, inflammatory glaucoma, etc., has come to us from Fuchs' first treatise on the eye, and represents a clinical classification which tries not only to take cognizance of an etiology for glaucoma, but clinical appearance as well. This is of course arbitrary. The whole matter is similar to the manifestation of hernia, with which, as you know, glaucoma has been compared before this. If a knuckle of intestine should become twisted and develop a slight edema with various accompanying symptoms, and we did not know that the twist with a pinching of certain blood vessels lay at the bottom of the whole matter we would have what in the eye would be called a simple glaucoma. If the twist was more severe and the interference with the circulation greater, then the edema would be greater, the congestion greater, extravasations of the blood might occur, and various signs indicative of an inflammation. In the eye this would be called inflammatory glaucoma, yet there is no difference except in degree between the two pictures of the strangulated gut that have been here represented. Finally, if from any cause a very ap-



parent pathological change would set in in the knuckle of intestine under discussion, say an infection of the intestinal wall, and in consequence of the inflammation so produced, the gut should be found to swell (an inflammatory edema), then this would correspond with the picture of the secondary glaucoma. In other words, so far as the edema is concerned, which is the essence of glaucoma, it does not matter whether this is of unknown origin, or accompanied by particularly striking secondary manifestations, or the accompaniment of a frank pathological change, any more than it matters so far as the edema itself is concerned whether a man's legs are swelled from a heat lesion, or from a local erysipelas infection. I was much interested in the remarks about spontaneous glaucoma, and the fact that this occurs in rabbits. Anyone who has ever been interested in what rabbits are fed will know that great carelessness exists in the feeding of laboratory animals. Instead of being given a good mixed diet, they are too often fed a so-called one-sided diet, one chiefly consisting of oats, or wheat or what not. Under these circumstances the animals develop an acidosis and a scurvy, and scurvy is characterized by the development of edema. Holst and Froelich, who have made extensive experiments on this subject, noted constantly marked edema in their scorbutic animals. William B. Wherry repeated some of these experiments about a year ago, and was kind enough to show me his results. In one of his rabbits he noted a marked glaucoma in both eyes.

Dr. Kaspar Pischel, San Francisco: After I had read Dr. Martin Fischer's interesting publications about his ingenious experiments. I became convinced that they meant a big step forward toward the solution of this puzzle. After consultation with Dr. Thomas, regarding strength and dosage, I immediately tried sodium citrate in every available case of glaucoma. I hope you all have tried it and will report your results. I made 10 injections in all; in 4 eyes with simple glaucoma I injected 0.1 to 0.2 of a 2½% solution without apparent result. But the patients complained so much about the pain that I could not try it again. In a case of glaucoma absolutum I made 4 injections 0.2 and 0.3 of a 2½ and 5% solution. Only the very first time after the smallest and weakest injection I noticed a slight reduction of tension. I am sorry that the results in my cases were not encouraging but I will try it again with larger doses.

Dr. Hayward G. Thomas, Oakland: In the 11 cases I have treated, I have given probably between three and four hundred injections, and have always observed prompt reduction of tension. One old man I saw for the first time 10 years ago. One eye was blind from glaucoma, inflamed and painful. He refused to have anything done for it. A short time ago he came with glaucoma of the other eye: T+2, vision 12/100. I immediately began injections and continued them weekly and bi-weekly. The reduction in tension was marked, and the vision in the good eye is now 20/40. As a matter of experiment, I injected the blind eye which has a cataract. The tension has come down very considerably, and the cataract shows a marked decrease in opacity. A patient from the country came into my office weekly for the injections. They were always followed by great reduction in tension, accompanying which the patient had a feeling of well-being. During these intervals she would feel happy, and be able to attend to her household duties. With return of the tension would return the depressed feeling. When I first used these sodium citrate injections, I had the old fear regarding the filtration angle, and so would use a drop of eserine to counteract any influence the cocaine and adrenalin might have in dilating the pupil. I got over my fears when one day a nurse came to me and with horror told me she had by mistake used atropin in a glaucomatous eye. There was a mild panic in the office immediately, but I went ahead and used the sodium citrate; the tension came down immediately, and though there was dilatation and the usual cycloplegic

effect for nearly a week, the tension did not rise and no ill results followed. In another case, that of a woman, thin, nervous, anxious, depressed, with both eyes glaucomatous and marked diminution of vision and field in one eye, I began injections, gradually increasing from 2% to 4% solution. This patient's sight and field became normal. Her general health improved greatly, as was evidenced by a gain of more than 10 pounds in a few months. The reason for Dr. Pischel's failure to get a reduction in tension is to be found in the fact that the solutions he injected were neither concentrated enough, nor sufficient in quantity. The ordinary case of glaucoma demands the injection of 10 to 15 drops of the 5% solution. The pain after such injections, while at times severe, does not last long, only 3 to 4 minutes as a rule.

Dr. Walter Scott Franklin, San Francisco: I agree with what Dr. Fischer has said in explanation of the rapid distribution of acid. It is necessary for us to find a method of keeping the eye in an acid media for a long time. Experiments seem to show that glaucoma is a stoppage of the filtration angle. Replying to Dr. Cohn, I did not inject bland oil in the eye; I prefer olive oil to the injection of ammonia, which is very irritating. Dr. Fischer's explanation of the rapid absorption of the acid certainly accounts for the fact of no hypertension being produced.

## OPERATIVE TREATMENT OF FRACTURES OF THE NECK OF THE FEMUR.\*

By S. J. HUNKIN, M. D., San Francisco.

Believing that the ordinary text-book teaching regarding the surgical treatment of fractures of the neck of the femur is bad, and believing also that results compared with those attained in other femoral fractures will follow better planned surgical treatment, is my excuse for this offering.

Orthopedic surgeons of late years have not been remiss in voicing opinions as to the advisability and efficiency of proper surgical procedures in such cases, but the ideas of the general surgeon ordinarily have prevailed, and they have taught that the surgical treatment of fractures of the femoral neck is in the vast majority of instances of no avail. Looking upon these fractures as pertaining to old age and fearing decubitus, delirium, pneumonia, and death, if confinement was insisted upon, and not believing union to occur under the best controlled conditions often enough to interfere with the rule, his opinion prevented any efficient action. The trusting patient then generally got little surgical attention and that little has usually been bad. The evidence of the last few years, however, and especially so since the common use of the Crookes' tube, has shown that fractures of the neck of the femur are not so rare in the young adult and are not unknown even in childhood. (Five instances of the latter have come under my personal observation.) Moreover, the "let alone" policy, or the little better policy of inefficient traction, combined or not with sand bags, or a padded bar, is not good surgery. May I here be permitted to state my conviction that in the large majority of recent fractures of the femoral neck in either the young or the old, repair, union and efficiency under ordinary careful surgical procedures, thoroughly carried out to the end, may generally be expected and secured. I believe also that proba-

\* Read before the California Academy of Medicine.

bly the large majority of femoral-neck fractures under similar procedures will unite as frequently as would other femoral fractures in the same individual. That is—I believe the classical reasons urged for non-union, the anatomical peculiarities described as favoring non-union, are not usually so responsible for the fairly constant bad result, as the mechanical difficulties in the way of securing and maintaining constant apposition of the fragments over a sufficiently lengthy period. Ordinary axiomatic surgical treatment for fractured bones is here defined to be immobility of the fractured fragments in firm, constant apposition in proper alignment over sufficient time. This in addition to the care of the patient so that the ordinary equilibrium of the body shall be maintained, together with the prevention of decubitus.

*Choice of Methods.* In my opinion the plan usually pursued, of straight traction with plaster, pulley and weight, combined with a long outside splint padded like an effigy of a dromedary's back, bears about the same relation to modern surgery as a camel does to an automobile in modern transportation. It is mentioned only that it may be unqualifiedly condemned. It is about what we would do if we wanted a false joint to be the result. Maxwell's plan of traction applied in different lines has been efficient in a few hands, but it needs cumbersome, complicated apparatus and careful, repeated adjustment; again, it does not provide for immobility, and is open to all the objections consequent upon our maintaining an aged patient absolutely fixed on the back. Probably the best known and most widely followed efficient plan for impacted fractures of the femoral neck is that of Whitman, who first places his patient in the position for making the splint. After an anaesthetization in the above position the sound leg is abducted to the normal limit to control the pelvis, while the injured hip, under steady traction, is slowly abducted. The surgeon at the same time supports the joint and forces the trochanter downwards. Careful work during this procedure demonstrates the contact of the neck with the rim of the acetabulum. At this point, if the abduction does not equal that in the other leg, the abduction is gently forced until equal abduction is secured. The whole extremity is then fixed in a long plaster spica. In complete fractures the plan is slightly modified by first flexing the thigh to disengage folds of the capsule before the abduction is made; the surgeon, during the abduction, taking especial pains to lift the thigh upwards. This latter is the maneuver practiced many years before by Maxwell.

In impacted fractures this plan has been followed by me with success in several instances. In complete fractures of a few weeks' standing, however, I have several times tried this maneuver with the capsule wide open and the fractured ends in direct view, and while the end of the major fragment performed the evolution as Whitman describes, the head did not rotate that way and direct contact of the fractured surfaces was only obtained after various additional maneuvers. In old fractures this maneuver and position in every instance failed to secure contact under direct observation. I, there-

fore, fail to see how these movements would be more efficient out of sight than when I was looking at them. I have even seen contact secured in this position and, after a slight movement incident to human assistance, the head was seen to have slued from apposition.

*Intra-osseous fixation adopted.* Cheyne practiced pegging the fragments together with  $3\frac{1}{2}$ -inch ivory pegs through the trochanter into the head. Nicolaysen used steel nails through the skin and trochanter without any incision. Wilson used coin-silver nails. Gillette, bone pegs and solid silver nails. Others have used screws, plates, staples, and whatnot, with varying success but mostly with satisfactory results in careful hands. Probably the character of the bone suture is of no particular importance, whether it be of coin-silver or of gilded steel. The bone by some operators has been noted hard and by others so soft that a nail or screw could be easily pushed in by the fingers, and even in the latter the peg has assisted in maintaining position.

*Method of Operation.* Usually an incision exposing the fracture, with a second small incision over the trochanter so as to enter and drive the nail in the direct line. Sometimes the fractured ends have been chiseled or curetted, and sometimes not, with no apparent difference in results. Gillette got one of his specimens 18 months later and found complete union. X-ray has demonstrated many others.

*Incisions Used.* Gillette's horseshoe incision, which is a convex downward incision from about 2 c.m. below the anterior superior spine across the trochanter 5 c.m. below the tip and division of the trochanter, is the hardest way down, yet apparently has been used most frequently with the so-called anterior incision going perpendicularly downwards from the anterior superior spine almost as frequent. Langenbeck's incision has been used successfully. Also a curved incision in front of the trochanter and a curved incision behind the trochanter. All have been successful, as was said about the suture, when used by careful hands.

*Position of immobilization:* generally in extension, combined with abduction, although Cheyne combined some flexion with his abduction. Whitman insists upon extreme abduction.

*Technic of the Operation as Followed by the Author.* Patient is on the back with each leg protected and wrapped separately. The assistant marks the line of the femoral artery just below Poupart's ligament. A crescent incision from nine to fifteen centimeters in length, depending upon the fatness of the patient, is swept from the anterior superior spine to within 1.5 c.m. of the femoral artery, curved back to about a perpendicular line from the anterior superior spine; this incision reaches the muscular layer. In fat subjects the incision divides a little of the rectus femoris and sartorius. In thinner subjects the muscle is not divided by reason of the incision being shorter. A few strokes of a dry dissector and the pulling inwards of the sartorius brings one at once upon the capsule of the hip joint. A little rotation of the leg, with a finger on the capsule, locates the anatomy and demonstrates the fracture. The cap-



sule is then opened with a knife and the fragments are exposed. A pair of deep retractors are introduced when direct observation of the fragments can be made. The internal fragment can be rotated with the hand or with a dry dissector and the cartilage of the head observed. The external fragment moves, of course, with the leg. The leg is then manipulated until the fractured ends are in contact and placed in that position, whatever it may be in which they appear less likely to slip. In recent fractures this is usually in the extreme abducted position of Whitman. One assistant is now given the sole duty to maintain this corrected position and the parts are fully exposed so that the assistant can see the anatomical landmarks of the pelvis. A tiny puncture with a bistoury is then made over the trochanter, about 4 to 5 c.m. below the tip, into the bone and a steel (sometimes silver plated) nail 8 centimeters long is driven through the trochanter and neck into the head. When the small head of the nail approaches the skin a steel "set," cupped to fit the head of the nail, is applied to the head of the nail which is driven firmly home. It has always had to be driven, in my experience, in recent cases, although the different densities of the structures are evident as the nail moves along. Observation of the fracture line with the eye and finger fairly well determines the location and direction of the advancing nail. Wilson advises the nail to be barbed and theoretically that seems good; but lately I had directed the nail at a bad angle and it came through the neck a little inside the line of fracture, but not sufficiently inside to give sufficient hold in my opinion. The nail had been driven fairly well in and the point projected over one centimeter when it was discovered, and, well, if the nail had been barbed I would have been in a mess. As it was, a good ten minutes was not too long to get that nail driven out and replaced. After the nail is located I often drive one of my staples across the line of fracture, the inner arm going into the head just at the cartilage rim, and the outer arm into the neck to the outer side of the fracture. The capsule is then closed as tight as possible with firm catgut and the wound closed in the usual manner. A plaster of paris spica is then closely applied from toes to mammary line, during the setting of which firm pressure is made downwards and forwards from above and behind the trochanter. This pressure is sufficient to bulge the splint 2 c.m. deep and as big as the palm of hand. There is no fear of decubitus if this pressure is properly applied. In older fractures the procedure is modified for two reasons. First, there is an abundance of firm fibrous tissue around and between the fragments which has to be removed, and, second, the neck and outer portion of the head are not all there, and under these circumstances the extreme abducted position of Whitman throws your fragments wide apart; this has been true even after I have removed the trochanter down to the insertion of the pyriformis. In some of these cases it has been necessary for me to divide even the pyriformis and pull aside, inwards, the tendon of the psoas iliacus and perhaps sacrifice most of my desired abduction before I could get contact. All

abduction must not be sacrificed if we expect function later. In a situation in which contact could not be secured, and I appreciate that it is possible I should not hesitate to cut the inner surface of the trochanter to proper shape and try to unite it with the head.

All the fractures I have found have been intra-capsular, some closer to the head than others, but all inside of the capsule and from the anatomy of the capsule which, in front, is attached to the intertrochanteric line, it is hardly possible, to my mind, even with an ax to produce an extra-capsular fracture. As to the circulation in comparatively recent fractures; the inner fragment appears to bleed normally, and in the old fractures, when a layer is cut off with a chisel, it seems to me to bleed just about the same as when I cut a layer off the end of an old un-united tibia. I don't think the circulation has so much to do with non-union as we have all along believed, nor is our failure in the inability to reduce the fragments, but rather it is to keep them there. The splint is the thing; the chief thing between us and union; between us and our failures. It is generally our bad mechanics, our inability to secure immobility, which gives us non-union. That the splint is the thing which makes or mars our success in bone surgery is the humble opinion of the speaker. The splint is made in such a manner as to permit of the patient being moved and turned as desired as soon as the splint has set—I have fashioned a wooden instrument to permit of the patient going into a side position, safely and comfortably.

*Results.* Practically every operator in the country who has done any comparatively good work, reports consistent good results. The speaker has done in the last four years 12 operations in the manner described and has had union in every one so far as he knows. Radiograms have not been made after the operation, so no absolute assurance can be given, but nine have recovered with good function and stability, and with less than 2 c.m. shortening. One, done some nine months ago, gets around easily with a cane, there being a weekly improvement. Two patients are still in bed, the operations being respectively four and three weeks old.

### SOME FEATURES OF THE SQUIRREL PLAGUE PROBLEM.\*

By GEORGE W. MCCOY, Passed Assistant Surgeon  
United States Public Health and Marine Hospital  
Service, San Francisco.

Plague among the ground squirrels is one of the most important problems which the sanitarian on the Pacific Coast is called upon to consider. The subject is so large that some of the more important features only will be considered in this paper.

*History:* The first positive knowledge we have of plague among ground squirrels in America was the finding of one of the infected rodents on a ranch near Concord, Contra Costa County, California, in August, 1908. Later in the same year several other

\* Read before the Medical Society of the State of California on April 20, 1910, at Sacramento.

infected squirrels were found within a few miles of the first one. In the spring of 1909 an extensive investigation of the distribution of the disease was undertaken by the Public Health and Marine-Hospital Service co-operating with the State Board of Health. The investigation is still in progress.

The campaign has been under the direction of Surgeon Rupert Blue, of the Public Health and Marine-Hospital Service. The field work was entrusted to Passed Assistant Surgeon W. C. Rucker, while the laboratory investigations have been carried on by the writer.

*Geographical Distribution:* The geographical distribution of squirrel plague may be considered under three heads:

First: The area in which *the disease is known to exist* among the rodents. At the present time this includes six counties: Alameda, Contra Costa, Santa Clara, San Benito, Santa Cruz and San Luis Obispo. In Contra Costa and Alameda Counties the disease has been found in practically every locality in which it has been sought. In the other counties one or more foci are known to exist, but we are as yet unable to say how widespread the disease is in these counties, as it has been the policy to extend the work to new localities rather than to expend our efforts on those that are known to have the infection. It is possible that as the investigation proceeds we will find the infection in other parts of the State.

In the summer of 1908, a plague infected squirrel was found in a park in the city of Los Angeles. An extensive campaign carried on there, during which time several thousand squirrels were killed and examined, failed to show any other case of plague among the rodents, so that for our present purpose Los Angeles County need not be considered. The Los Angeles squirrel was found dead near the yards of the Southern Pacific Railroad, and it seems probable that it represented a small epizootic due to importation of the disease either by a rat or by a squirrel and not an extension of the epizootic which we now know is so prevalent in some parts of the State. One human case directly traceable to squirrel infection occurred in Los Angeles. Prompt measures of squirrel extermination were inaugurated by Dr. L. M. Powers, the health officer of Los Angeles, and these measures seem to have been effective in destroying the focus of infection.

Second: In addition to the counties known positively to be infected, there are several others, notably Merced, Tulare, Fresno, Stanislaus and San Joaquin, in which no cases of squirrel plague have been found, but in regard to which certain indirect evidence is available, pointing to present or past infection among the ground squirrels. In these counties a number of squirrels have been found which presented lesions not to be distinguished from

those seen in ground squirrels that have recovered from plague infection.

Additional evidence in regard to these counties in which no cases of squirrel plague have been found is the following: Early in our work it was found that the squirrels in San Mateo County were almost uniformly susceptible to plague, while many of those in Contra Costa County were found to be quite resistant to the infection. The squirrels found in the two counties were of the same species and all conditions of the experiments were similar for squirrels from both counties. The sole difference was, that in the one instance (Contra Costa County) the rodents came from a county where large numbers of plague infected squirrels existed, while the others (from San Mateo County) came from a county where no squirrel plague had been observed and where investigation has failed to demonstrate the presence of the disease. Regarding these counties, Merced and others, we may say that they probably have had squirrel plague, but that it was not present at the time our examinations were made.

Third: As to the *possible limits of the infection* among the squirrels we are at present unable to make any definite statement. It seems not at all improbable that the infection might coincide in extent with the area of ground squirrel infestation, but we do not believe that it is so extensive as this.

In order that the members of the Society may understand the extent of our investigations the figures of our work up to and including April 9, 1910, are given here:

Squirrels examined .....	84,000
Squirrels infected .....	331
Number of counties investigated .....	21
Number of counties that have furnished infection .....	6

*Natural Barriers:* Let us now consider what physical features of the country may be expected to act as barriers to the spread of the epizootic we are considering. The first thing one thinks of is the presence of large bodies of water, and we find that the northern limit of the focus is defined, so far as we know at present, by the Straits of Carquinez and the Sacramento River. The question at once arises as to whether or not the ground squirrel can swim, and in answer to this we may state that we have found that these little animals have no difficulty in swimming. Whether they ever do actually cross large bodies of water is a different question, and one about which we have no information. It should be stated here that north of the bodies of water mentioned, we have a variety of the ground squirrels (*Citellus beecheyi douglassi*) which is slightly different from the ordinary ground squirrel (*Citellus beecheyi*). Whether the ordinary squirrel is also found north of the river we have not been able to determine.

The second natural barrier is high mountain ranges. The California ground squirrel is usually said not to exist in high mountains, though Passed Assistant Surgeon Rucker tells me that he has seen the rodents as high as 3500 feet on Mt. Diablo in Contra Costa County. This question is however of little importance, as all of the mountain ranges



are cut by passes and these are inhabited by squirrels; and in addition there is no very large range west of the Sierra Nevada Mountains. If the Sierras constitute the only barrier to squirrel plague the problem becomes infinitely larger than we now believe it to be.

The third factor to be considered here is the low-lying land that is flooded from time to time. There is a general agreement of opinion that very few squirrels, or none at all, are to be found in such land. However, this is not so distributed as to be of any aid in preventing the spread of the epizootic.

Among the natural barriers we must consider those wide stretches of country that support none of the higher forms of animal life. These barren areas would of course effectively limit the spread of the infection.

The danger of transportation of infected squirrels in commercial channels by common carriers, such as ships and trains, is so small that in my opinion it may be disregarded. When new localities are infected it is probable that it is by a peripheral spread of the disease among the rodents.

It seems likely that the density of squirrel population has much influence upon the prevalence of the disease. In parts of the country where squirrel colonies are few in number and widely separated, one would expect that the disease would have comparatively little chance to spread, the presumption being that opportunities for contact would be reduced to a minimum.

*Nature of the Evidence of Squirrel Plague:* I am sure that the members of the Society will want to know upon what grounds the diagnosis of plague among the squirrels in California has been made. As too much time would be required for a full discussion of this subject, I shall merely give you a summary of the evidence available.

Plague infected squirrels present certain gross anatomical changes that resemble somewhat the lesions of plague in other rodents and in man.

From these plague squirrels a bacillus has been isolated that corresponds in every way to the plague germs isolated in America and in other countries from plague rats and from cases of the disease in man.

The squirrel plague bacillus is influenced in the same way by anti-pest serum as are strains of the plague bacilli isolated elsewhere; in other words, anti-pest serum "protects" an animal against the disease-producing properties of the organism.

Finally, a number of cases of plague in man have occurred that have been accurately traced to squirrels. These were cases in which there was no other known source of infection.

I may state here that it is my personal opinion that we need have no apprehension of a great epidemic among people arising from the squirrel infection. Probably a few cases will occur every year while the infection remains among the rodents, but the direct influence upon mortality and morbidity figures will never be large.

The greatest danger of the situation is in the risk of the infection of rodents of cities, a subject which will be mentioned again, and in the gradual spread

until the disease becomes so widely disseminated as to be beyond measures of control. Indeed, there are those who believe that the latter condition already exists.

*Relation to Other Rodents:* This is one of the most important features of the whole question.

It seems highly probable that the rats in any community might be infected with plague from contact with the fleas from infected squirrels in the vicinity or by eating the carcass of an infected squirrel, or possibly in some other way. Squirrel plague has been found very near to the cities of Berkeley and Oakland; so near, indeed, as to make this question one of great concern to us. It is believed that the infection of the rats of a city from the squirrels in the surrounding country does not often occur, but there are no theoretical or practical reasons that can be successfully urged against the possibility of its occurrence from time to time. It is my individual opinion, with which the majority of those, I think, who have studied the situation agree, that the menace to the cities of California from the presence of ground squirrel plague is far greater than is the danger of importation of the disease from abroad. So much for domestic rodents (rats). It is probably needless to say that measures have been taken to prevent if possible the infection of rats in the bay cities.

There is a very widely distributed class of rodents known as Brush Rats or Wood Rats. These animals are members of the *Genus Neotoma* and are closely related to the ordinary domestic rats and mice. These rodents are by no means rare on the Pacific slope. We have on record a single example of infection in a member of this genus. We do not know now whether this means that there is an epidemic among them or whether the one found was the result of accidental infection from ground squirrels. There are other rodents, various species of squirrels, field mice, marmots, etc., which while we have no knowledge of their relation to the infection are probably susceptible. It was pointed out by Dr. Blue long ago that geographical and zoological conditions on the Pacific slope are entirely consistent with the establishment of a permanent endemic focus of plague in the country.

*Natural Subsidence of the Epizootic:* The question has often been asked, as to whether the infection will not die out of its own accord. We have no experience in the way of previous epidemics of squirrel disease to guide us, but there is a certain amount of indirect collateral evidence available. We know that epidemics of various diseases among people tend to terminate spontaneously, and we have every reason for believing that in times past, epidemics of plague among rats have appeared, spread and finally subsided. This must have been the case in ancient times before anything definite was known about the relation of plague in man to that in rats; and in more modern times when pest has occurred in countries where systematic measures of rat extermination have not been carried out.

The question of a natural subsidence of the disease among the squirrels due to an attenuation of the germ is one that we have had in mind from the

start. The only experiment that seemed practicable was an attempt to artificially carry the infection through a long series of ground squirrels; that is, from one squirrel to the other. This was done by the process of inoculating each squirrel in the series from the spleen of the preceding one. In this manner, during a period of four or five months, the infection was carried through about thirty squirrels. There was no loss of virulence whatever, and the series was terminated only by the exhaustion of the supply of squirrels. The evidence all goes to point to the fact that the disease among the squirrels began six or seven years ago, and as it is still with us, it must have passed through a great many generations; far more than we have been able to carry it through in the laboratory.

When the epizootic sweeps over a squirrel country, it does not kill all of the rodents. Some have the disease and survive; others are probably naturally immune. We infer that this is the case because we now find a large percentage of resistant and even absolutely immune squirrels among those in counties such as Contra Costa and Alameda, where the disease, according to the best collateral evidence obtainable has prevailed for a number of years. Whether in due time the process of elimination of the unfit (the susceptible) and the survival of the fit (the immune) will go on to the complete extinction of the epizootic, we cannot say. Every year there is an enormous crop of young squirrels, and we are at least at liberty to hope that many of them have a hereditary immunity, and that in time the disease may extinguish itself. With our present knowledge of the subject, this gradual immunization seems much more likely than any attenuation of the bacillus.

*Measures of Control:* The subject of squirrel extermination or squirrel plague control will be dealt with very briefly.

It is not believed that it is practicable to actually eradicate the ground squirrels in such a large area as a county, much less in several counties. It is quite possible that a warfare against the rodents will so reduce their numbers as to make the natural dying out of the infection more probable.

Measures of control will naturally divide themselves into two classes: those taken by the individual property owner, and those undertaken by the municipal, state and federal authorities. As it is to the farmer's advantage to exterminate squirrels on his land, on account of the great damage done to crops, it is not anticipated that great difficulty will be encountered in getting the aid of the agricultural class, and the efforts made along that line thus far have been quite successful. The county and the State should be expected to aid in this work, and the latter has passed certain squirrel extermination laws which should be of great help in controlling the situation. Municipalities should guard themselves by putting a squirrel-free zone about them in order to prevent infection of their rats. The Federal Government should continue to exercise supervision over the measures taken.

Some idea as to the total cost of squirrel eradication measures may be gleaned from the fact that in order to learn something on this point we have

undertaken a campaign in the country immediately surrounding Berkeley and Oakland. It has been found that the average cost per acre for poison is fifty cents and for labor in applying the poison \$2.00, making a total of \$2.50. As the infected area covers more than one million acres we may get an idea as to the total cost of applying the measures of eradication. It is recognized that this figure is only approximate and that different conditions of terrain, number of squirrels in a locality, etc., make a great difference in the expense of various localities.

In conclusion, I may say that the presence of plague among the ground squirrels is not a cause for alarm or great apprehension. We must deal with the question vigorously and perhaps one of the most important factors is the dissemination by physicians of accurate information on the subject.

#### Discussion.

Dr. C. Rucker, San Francisco: This society is to be congratulated upon Dr. McCoy's presentation of this subject and I think that he has been too modest in that he has not laid enough emphasis upon the scientific work which he has done. My work has been entirely the field work, the administrative end, getting out and getting the squirrels and seeing to it that they arrive at the laboratory in good condition and then the final scientific work is begun. We have here a disease occupying a wide area of the country and the outlines of this area have not been determined in their entirety. It seems to me that it is the duty of every health officer and every physician to assist in this work by sending squirrels to the laboratory. It has been the custom, whenever any one makes known his desire to do this, to send him the proper containers in which to send the squirrels and to pay the expressage upon the package. These squirrels should be sent as fresh as possible and should be properly tagged to show when and where they were shot. It is not necessary that the squirrels should be exclusively furnished by shooting; poisoning will do just as well. It is well, as a matter of precaution, to put into the can a little chloroform to kill the fleas. The medical profession should be on the qui vive to determine the presence of this disease among human beings. During the last summer three cases occurred in the Alameda County jail, and in all these cases we were able to satisfy ourselves that these persons had been more or less connected with squirrels, and we should watch out for these things and try to find them. This is a new field of work; we know very little about it and we should be anxious to learn and to push it forward as rapidly as possible.

Dr. W. F. Snow, Sacramento: I would only emphasize what our president has said with regard to the work done in California. The State Board of Health was most fortunate to be able to turn this very serious problem over to the United States service for guidance and for 99 out of 100 parts of the work. This is really a national problem, and probably an international one. The state of California could not possibly have met it, and could not even now after our training with such men as were sent out here to us, handle it alone. I have had some letters which have disturbed me somewhat which are most important to you. They have come from the east from very reputable men, keenly interested in the welfare of this country. For example, some men of the faculty of Cornell, and others, have heard discussions of plague on the coast and have written letters asking for further information, saying that there is the greatest danger of plague spreading eastward through Texas by means of its transfer in squirrels, and thereon through the rest of the United States. These statements have come through slight exaggerations with reference to the squirrel problem. There is danger



if we fail to control the problem, but the active work being done warrants our statement that both ourselves and the United States are being protected. However, many people believe that we are not able to control it, and are suppressing the information with reference to the disease. That reflects upon us as citizens and upon the Federal service, which has done such valuable work for us. As physicians we should all see to it that we, as centers of scientific information, make these points clear to our fellow citizens, so that they may in turn make the points clear to their friends in the East.

Dr. L. M. Powers, Los Angeles: We have had some experience in Los Angeles County with the squirrel question. At first we were very much puzzled as to why these cases were appearing in that section, but upon investigating the country, we followed up the railroad to where it brought in and unloaded the freight cars, and have found that as these cars were brought down and switched off, they were cleaned and all the refuse swept out and the squirrels were attracted to that district. One of our cases was that of a young boy who, when trying to catch one of these squirrels, was bitten and five days later developed a high temperature and enlarged glands. We examined the case without knowing the nature of the disease, but finally became suspicious and went out and hunted up the squirrel which we found dead near the place where it had bitten the boy. This was examined and pronounced as plague and the diagnosis was verified by Dr. McCoy. We were much puzzled as to how the infection reached Los Angeles and how it could have skipped the country between Contra Costa County and Los Angeles, but we finally decided that its source was from the cars which had been swept out at that point, and that the squirrels had become infected and had then gone into the hills to live. We set out to destroy the squirrels and since then have had no more cases, either of human or squirrel plague. But the question comes up as to what to do next and where the cases originate, and whether it can be that it is started by co-mingling with rats. We have found that rats do not exist where squirrels are, but since the destruction of the squirrels, we have found that rats are becoming numerous.

Dr. R. G. Brodrick, San Francisco: I wish to congratulate Dr. McCoy upon the paper he has read and to lay emphasis on one point that has been overlooked on account of the shortness of time given for the reading of papers. That is the protection that cities might take against importation of the squirrel infected with plague. This matter was taken up in 1909 between Surgeon Blue and the Board of Health and an ordinance was passed making it prohibitive for any one to bring into the City and County of San Francisco squirrels from neighboring counties. The ordinance was directed chiefly against men and boys who on holidays and Sundays went into Contra Costa County to shoot squirrels for human consumption in the North Beach district of San Francisco. Dr. Rucker laid stress particularly upon the importance of this phase of the question, that is, of squirrels being infested with fleas which might spread the infection. Placards were put up in ferry boats, trains and hotels, written in Spanish, Portuguese, Italian and French, as well as English, and I believe that through the activities of the Harbor police this custom has been abolished.

Dr. Stanley P. Black, Pasadena: I think the health officer can help in this question, by endeavoring as far as possible to keep his district free from squirrels. It is a big work and in Pasadena I have kept up the fight each year. The man whom I have employed to poison the squirrels has reported to me that the city is practically free from squirrels except in the outlying districts, where the holes which have been emptied of squirrels, are later occupied by squirrels which emigrate across the city limits. We will soon eradicate the squirrel from the state of California if we keep on with this work.

## ARTIFICIAL CULTIVATION OF THE LEPRO BACILLUS IN HAWAII.

By HARRY E. ALDERSON, M. D., San Francisco.

The writer, on his last visit in Honolulu (July, 1910), had the privilege of seeing living cultures of the lepra bacillus (in the tenth subculture) at the Kalihi Receiving Station laboratories. For some months Brinckerhoff, Currie and Holman (all of the U. S. P. H. and M. H. Service) have been endeavoring to confirm Clegg's work and after having inoculated hundreds of tubes with leprous material, finally succeeded in growing the organism so that they were able to transplant it and carry it on to the tenth subculture. They have been able to greatly improve on Clegg's technic and have learned many new details which seem to be essential to success. They have successfully grown the bacillus four times from three cases of leprosy and have finally isolated it in pure culture. This was accomplished by first growing the organism in symbiosis with the cholera spirillum and the ameba (the latter obtained from the intestine of a guinea pig). The improved technic will be fully described in an article soon to be published by Donald Currie.

There were many interesting observations made during the course of this work, some of which are as follows: Success was met with only when the material was obtained from rather early untreated cases. Failures resulted when inoculations were made from late cases, or early cases that had been given Chaulmoogra oil for some time. This point will be worked out more fully by Currie. It was found that the serum from recently deposited non-ulcerated nodules offered the best chance for success. The formula of the medium used was as follows: Salt 0.3, Agar 20.0, Water 1000.00, cleared with egg albumen. For growing the ameba, beef extract (0.3) was added to this formula. The ameba and the cholera organisms were first grown separately (the former as already indicated and the latter on glycerin-agar). Then the leprous material, cholera and ameba cultures were planted on a Petrie dish (after the manner to be described in detail in Currie's article), and after a certain stage had been reached this mixed culture was transferred to tubes. Lack of space will not permit a full account of the details here. It was found that the cholera spirillum became quite virulent when grown in this way. Bacillus coli, and bacillus typhi murium were tried as substitutes for the cholera organism, but without success. The culture tubes must have an abundance of water of condensation and it is best not to disturb them any more than necessary. Clegg recommended examination of the tubes on about the tenth day for the purpose of determining whether multiplication had occurred. Brinckerhoff, Currie and Holman did this in the early part of their work, but they soon concluded that the failures were largely due to disturbing the tubes. Now they do not examine a culture during the first three weeks of its growth. After transplanting the mixed culture three or four times, it is subjected to a temperature of 60° C. for three minutes. This kills off the amebae and the cholera organisms, but does not affect the lepra bacilli, which latter can then be transplanted and readily grown in pure culture.

Multiplication of the lepra bacillus is indicated by a change in its morphology. In the young cultures it appears as a short, plump, acid-fast organism occurring in chains ("an acid-fast strepto-cocco-bacillus"—Currie). Later it tends to return to the form seen in tissue. Variations from these forms occur, however.

All of this work has been well controlled throughout and some very interesting results of animal inoculations will be published soon.

The laboratories at the Kalihi Receiving Station (Honolulu) and at Molokai are completely equipped and there is a great abundance of material available. At the former place the government is building new hospitals for experimental treatment. Arrangements have been made for animal experimentation on a large scale and interesting results are to be looked for in the near future. The preparation of an emulsion of the lepra bacilli for "vaccine treatment" will be the next step in this great work, and some of those so fortunate as to be engaged in it have expressed the opinion that in a few years "we shall be as far advanced in the successful treatment of leprosy as we are now in the care of tuberculosis."

#### A CASE OF HERNIA IN A CHILD.

By THOMAS GARFIELD DODDS, M. D., Oakland.

Name, Harry K., age 4 years. Well developed and well nourished; full term child; bottle fed. Mother states that child was "born ruptured." Since birth has had attacks of inability to retain urine. Child exceedingly cross and irritable at all times. At times attacks of vomiting and febrile temperature were noted. At such times child complained of severe abdominal pain. Family physician examined child and referred parents to an instrument maker who applied a spring truss. Mother states that truss has always seemed to hurt the child. Since first wearing truss, which was begun at the age of two years, child has been periodically afflicted with spasms. Complained at intervals of a great deal of pain in scrotum and right inguinal region.

Examined 6 25 10. Physically an apparently normal child except noted absence of right testicle. Oblique inguinal hernia present. Marked sense of resistance noted in lower right quadrant of abdomen. Pressure over McBurney's appendiceal point showed slight tenderness. About one inch lower down a decidedly tender point was found.

Diagnosis—Undescended right testicle. Oblique inguinal hernia on right side, and probably a condition of chronic catarrhal appendicitis. Operation advised.

Date of operation, 7 2 10. Oblique incision on right side down to sac. Sac opened. In sac appendix found coiled upon itself and adherent to walls of sac. When uncoiled appendix measured 5 2-3 inches in length. Appendix removed through opening in neck of sac. Fine silk purse string method used. Undescended testicle found in sac just above appendix. Impossible to draw testicle down into scrotum. Testicle about 1/3 size of left testicle. Removal of testicle. Typical Bassini operation completed on R. side.

Post-operative History.—Appendix opened after removal; found to be catarrhal in type. Child left hospital in two weeks. Has since gained in weight; has become less cross and irritable; has had no recurrence of spasms or pain, and no further incontinence of urine.

Conclusions.—All cases presenting themselves wherein an absence of the testicle is noted along with a condition of hernia, are not well adapted to the wearing of a truss. It is always advisable that

the physician himself should fit the truss, should the advisability of wearing such be determined upon. It is unwise to cause the pressure of a truss to be brought to bear upon a testicle that may be caught in the inguinal canal.

In two and one-tenth per cent. of all children who are born ruptured, the appendix will be found in the sac. A ruptured child having a history of repeated attacks of spasms may in reality be suffering from repeated attacks of appendicitis.

#### ACUTE LYMPHATIC LEUKEMIA: REPORT OF A CASE.

By JOS. M. KING, M. D., Los Angeles.

The following case occurring in the practice of Dr. C. A. Jenks is deemed worthy of report on account of the very high leukocyte count, high percentage of leukocytes in a lymphatic case, the size of the lymphocytes, and the autopsy findings.

H. N., aged 20, single, born in Connecticut of Norwegian parentage, electrician by occupation, called a physician on July 16th, complaining of weakness, fever, and tenderness in the splenic region.

He had two brothers and three sisters, all living and in excellent health, as were also his father and mother, and his maternal grandparents. His paternal grandparents lived to old age. He lived in Connecticut until four, when the family moved to Los Angeles, where he had since resided. Until fifteen he had attended school, then for two years worked in a rubber stamp factory, and the last three years of his life he did inside electrical wiring. He did not drink or smoke, led a temperate life, and gave no history of venereal infection. Of the diseases of childhood he had measles, mumps, and chickenpox, and at ten was confined to bed for a week and to the house for three weeks with what was said to be "typhoid pneumonia." He was fond of athletics, and did gymnasium work three times a week, but had no recollection of having received a fall or blow in the splenic region or elsewhere. He had not had malaria. In the latter part of April this patient noticed that he had slight digestive disturbances, with some weakness, vertigo, free perspiration, and on inquiry recalled that he also had slight pain in the splenic region. No fever or splenic enlargement were noticed by him, and he did not stop work or seek medical advice. This condition continued with intermissions until July 9th when, while at work in a neighboring town, he developed a slight nasal and bronchial "cold," with gastro-intestinal symptoms reappearing and increasing in intensity, so that he took to his bed, complaining of abdominal cramps, constipation, headache and fever. On July 13th he returned home, and for the next three days spent part of the time in bed and part about the house, depending on the severity of the gastro-intestinal symptoms. On July 16th a physician was called, who noted the enlarged spleen but made no diagnosis. He put the patient to bed on a restricted diet, and administered quinin and salin laxatives, resulting in copious dark stools, probably hemorrhagic.

On July 19th the young man came under the observation of Dr. Jenks and myself, at which time he was in bed complaining of a little frontal headache but no other pain, slight blurring of vision, hearing impaired, and of great weakness, although he was going some distance to the toilet. He also had some cough with the expectoration of scanty sputum mucoid in character, occasionally slightly blood tinged, and which on subsequent examination did not contain tubercle bacilli. He was drinking considerable water, perspiring very freely, and felt hungry and asked for a more liberal diet.

Examination revealed a well developed young man 5 ft. 9 in. tall, weighing about 140 lbs. The tongue was heavily coated, but no leukemic infiltrations were noted in the mouth or throat. With the exception of a few mucous rales heard in the left infra claviclar region, no abnormality of the lungs was found. The



respirations were increased in frequency and some dyspnea was noted. Dullness was present over the upper part of the sternum, continuous with the cardiac dullness below. No tenderness was noted over the sternum or the shafts of the long bones on percussion. The apex beat was observed in the fourth interspace, two inches within the nipple line. The area of cardiac dullness seemed normal in extent, although the heart was pushed to the right. No murmurs were heard on auscultation. There was slight general abdominal distension, and the superficial abdominal veins from Poupert's ligament upward were full and congested. Upon palpation the spleen was found to extend to the median line, reaching down to the level of the umbilicus; slight pain was elicited by pressure on the splenic tumor. In the right hypochondrium a somewhat illdefined mass could be demonstrated reaching about to the umbilicus; its edge did not appear sharp, and it was not tender to pressure; it was dull on percussion, being continuous with the dullness in the hepatic area. The submaxillary, cervical, axillary and inguinal glands were uniformly slightly enlarged, but not tender. The patient had not noticed them. The epitrochlear glands were not enlarged. The temperature was 101.8 F., the pulse 104, soft, compressible, but of good volume. Respiration 30.

Blood: Hemoglobin (Dare) 42%, reds 3,024,000, whites 1,128,000, color index 0.7, ratio of whites to reds more than 1 to 3.

The stained specimen showed moderate poikilocytosis and anisocytosis. There was slight polychromatophilia. As the case advanced nucleated reds, both normoblasts and megaloblasts were found fairly common, the megaloblasts exhibiting all degrees of polychromatophilia, an occasional one being seen which seemed to be absolutely basophilic. In the nuclei of the megaloblasts the various stages of mitosis were seen, and in one it was very evident that division of the nucleus had taken place.

A differential count of the whites gave

	per cm.
Mononuclear nongranular .....	98.5% 1,111,080
Polymorphonuclear .....	1.0% 11,280
Eosinophiles .....	0.3% 3,384
Basophiles .....	0.2% 2,256
Myelocytes .....	0.0 0
	100.0% 1,128,000

It seemed impossible to differentiate the mononuclear nongranular cells into large and small lymphocytes and large mononuclears, for while by far the greater percentage were large lymphocytes, there was every gradation from the smallest to the largest, and although an occasional large cell had a smaller nucleus with a relatively larger ring of protoplasm, these also seemed to shade into the large lymphocytes.

Some of these large cells measured 24 m, and many of them were 22 m in diameter. In the nuclei of these large cells a reticular network was apparent. Neither Lowit's bodies nor Auer's rods were observed.

Urine: Clear, straw-colored, acid in reaction, sp. gr. 1022, no albumen, sugar or casts.

On each succeeding day the patient grew worse, with increasing shortness of breath, discomfort after eating, fullness in the epigastrium, and a very nervous, almost hysterical condition at times. He began to have some pain when he lay on his left side, and during the night of July 21st suffered from a rather severe nasal hemorrhage, which was repeated on the night of the 24th. During all this time his appetite was good, and remained so until two or three days before his death. On July 26th enlargement of the right epitrochlear gland was observed, and on the 27th a copious petechial eruption appeared on the abdomen and lower part of the chest, gradually extending to the limbs. The spleen continued to enlarge; the patient gradually sank into a comatose condition, and died on July 30th, three months after the first symptoms, and

eighteen days after he was first confined to the house.

An autopsy was performed by Dr. Stanley P. Black, who gave the following report: The body is that of a fairly well nourished young man, apparently about twenty years of age, five ft nine in tall, weighing about 140 lbs. A bluish green discoloration exists above both inguinal regions. Petechial hemorrhages are present in the skin. Upon removal of the sternum a mass of tissue is found filling up the anterior mediastinum, adherent to the pericardium and sternum. The left pleura contains one pint of dark amber colored serum, without fibrin. The upper lobe of the left lung is emphysematous; the lingual lobe is markedly emphysematous, and the lower lobe consolidated and airless except in the upper portion. Nodules the size of a bean, firm of texture, are seen on the surface. The consolidated area is not granular on the cut surface, and contains a large amount of bloody fluid; the small nodules when bisected show a fairly circumscribed area, bulging from the cut surface, the central portion dark, about black, with a pigmented grayish colored outer zone. The right pleura contains no fluid; the diaphragmatic surface of the pleura is ribbed with dark red granular flat masses irregularly distributed. The right lung is voluminous, emphysematous at the margins, the upper lobe containing air, the lower part of the lower lobe dark red and airless. The cut surface projects irregularly above the level of the surface, is somewhat granular and exudes a dark red fluid. Over the anterior surface and the posterior surface inferiorly of the pericardium there are large thick very firm masses, markedly nodular, extending up over the base of the heart and the beginning of the great vessels, about three inches thick and filling the anterior mediastinum, which, when cut through, show red granular masses resembling adenoid tissue. Upon opening the pericardium a large amount of cloudy serum escapes. The inner surface of the pericardium presents numerous small ecchymotic patches. The heart is normal in size and appearance. The left ventricle is empty with the exception of a very small goose fat clot. In the left auricle there is a large dark clot, grayish in color on its dependent surface. In the right ventricle is a large goose fat clot. The valves and myocardium are normal. The intima of the aorta presents small lines, slightly prominent, of a marked yellow color. The thyroid appears normal in all respects. The upper border of the liver is at the lower edge of the fifth rib, and the lower border at the level of the umbilicus. It extends from the umbilicus diagonally to the seventh costal cartilage of the left side. The lobulation at the falciform ligament is about three inches in depth. Over the anterior surface at the margin of the ribs there is marked glassiness of the capsule. The color of the left lobe is yellowish, of the right lobe normal. The markings are very plain and distinct. Its consistency is normal. The right inferior projection is markedly movable on pressure from the back. The gall bladder is large, and fairly well filled with bile, its walls being thin and lax. A clear dark amber colored bile is easily squeezed out from the ducts. The lining is smooth and of normal texture. The spleen projects to within a half inch of the level of the anterior superior spinous process, and is nine inches in length, six and a half inches in width, and four inches thick. There are no adhesions to its surface. In the upper three-fourths it is of the usual color, the lower pole showing light pink patches from one-half to one inch wide, one to three inches in breadth, irregular in shape, pinkish in color, and not projecting above the surface. Throughout the lower pole we find dark and tortuous lines, which resemble vessels. On section the organ is of a uniform dark red color, with no bluish tinge; the pulp projects slightly above the capsule; on scraping with the knife a small amount of a bright red fairly clear fluid is obtained; the scraped surface has a markedly glistening appearance. The pancreas appears normal.

The suprarenal on the right side is small, rather darker in color than normal, on section the cortex is not prominent, but the medulla shows the normal brown pigmentation. The left suprarenal is normal. The kidneys are equal in size, their consistency slightly decreased, the surface slightly bluish in color, with round areas of a dark red color under the capsule; these patches do not project above the surface; cutting through these patches we find a wedge-shaped hemorrhagic area extending down into the cortex; the pelvis of the kidney is dark mottled red; the cortex is of normal width, the whole cut surface, both cortex and pyramids, of a pinkish color; the capsule strips normally.

The bladder is full of amber colored urine, its walls are normal, and the prostate is not enlarged.

Throughout the ilium the solitary follicles are enlarged to about pinhead size and, with Peyer's patches, are prominent; in the ascending colon there are masses of apparently adenoid tissue, dark red in color, ulcerated on the surface; the base of the ulcers appear smooth, and are of the same color as the surrounding tissue.

The mesenteric lymph glands are much enlarged, being from the size of a split pea to one and three-quarters inch; they are of a light yellowish color throughout; the lymphatics in the lesser omentum are much enlarged, some being one by one and a half by one and a quarter inches; the cervical, right epitrochlear, mediastinal and inguinal lymphatic glands are similarly enlarged and affected.

The sternal bone marrow is a dull red color with innumerable spots of apparently connective tissue or blood vessels, with pinpoint to pinhead sized whitish spots; the bone marrow of the left femur is of a dark red color, semi-transparent in appearance throughout the shaft of the bone; the vessels are seen as connective tissue streaks.

Anatomical diagnosis—Acute lymphatic leukemia; emphysema of lungs; hyperplasia of spleen, liver, and of cervical, right epitrochlear, mediastinal, mesenteric, retroperitoneal and inguinal glands, and of bone marrow, and lymphoid deposits in kidneys, ileum, anterior mediastinum, and elsewhere throughout the body.

## RAILWAY SURGEONS

### NON-UNION OF FRACTURE.\*

By A. W. MORTON, M. D., San Francisco.

The subject which I have selected is one of so much importance that I believe a discussion by this body of Railroad Surgeons will be of much benefit.

This can not be overestimated when we consider that the railroads of this country produce more fractures than all other corporations combined. We must also consider the legal aspect, and the amount of dissatisfaction which it causes to the surgeon and the patient, to say nothing of the anxiety of the friends and the ever present claim agent. I believe we will all agree that it does not receive the attention it merits.

Every surgeon will sooner or later meet one of these perplexing problems where the patient will not be willing to go to the hospital where he can receive more radical treatment, so long as he is not suffering any special pain, and the claim agent has not settled. Such cases often last long periods of

time; the attending surgeon condemning himself for the result, the patient and his friends are often of the same opinion, and do not hesitate to say so.

With our improved methods of diagnosis and treatment, we should seldom get this condition if we give the patient the proper treatment in the beginning. We should skiagraph the fracture just before and after the primary treatment to see that the bones are placed in the proper relations and that they remain thoroughly immobilized.

You may claim this is impossible, but I want to say that the time is near when the public will demand better results in the treatment of fractures and will not be satisfied with the indemnity received from the railroads, but they will appeal to the courts, who will require better results in this neglected branch of surgery.

If you have failed to take the skiagraph before this condition arises, do you think you have been able to administer the proper preventive treatment? These are questions we should consider well; the jury may do it later.

Non-union is referred to a fracture where all effort on the cells of the part have ceased to perform bony union. This condition varies, according to the location of the bone fractured, and we seldom speak of non-union until several months of delay causes us to anticipate that nature has exhausted her efforts in repair. This condition is generally attributed to constitutional and local causes. Any of the constitutional diseases which lower the vitality of the patient may be a predisposing cause, and should always be noticed.

The great factor is found in the local condition of the fracture which has not been relieved at the first dressing; defective treatment. The ends of the bones are not placed in approximation; they may be separated by muscles, tendons, intervening fragments of bones, or muscular action, all of which have a tendency to separate the pericostal bridge. Suppuration and necrosis often act as a factor.

The local treatment is divided into the non-operative and the operative. It is well to assume that the treatment has been at fault, and that the non-union is generally a result of imperfect apposition of the fractured bones and imperfect immobilization.

The parts should be placed in apposition and thoroughly immobilized, and kept in that position for several weeks, which will often correct the defect. Should this fail, some of the local methods should be tried to stimulate the formation of callus.

The Bier method of producing venous congestion locally is produced by applying a rubber bandage just above the fracture snug enough to cause the parts to become slightly swollen, and not to pro-

\* Read at the Eighth Annual Meeting of the Pacific Association of Railway Surgeons, San Francisco, August, 1910.



duce any unpleasant feelings. This should be an adjunct to the other treatment and applied for a few hours night and morning. This will seldom fail to relieve the condition of delayed union, and assist in the cure of non-unions.

Bier has also suggested the injection of twenty to thirty c.c. of blood from the patient between the ends of the fracture. The ends of the bones may be stimulated by applying counter-irritation over the seat of fracture by percussing the parts with a hammer, so as to produce a local congestion. Forcibly rubbing the ends of the bones together has many advocates. Some irritate the ends of the bones by drilling into them. Injecting irritants such as tincture of iodine between the ends of the bones is used with some success.

The most practical method is to expose ends of the bones, resect them so that you have the parts as nearly like a fresh fracture as possible. The bones are retained in position by means of sutures, staples, pins, or better, strong metallic plates such as are recommended by Arbuthnot Lane. There is a tendency for the muscles to contract and produce much tension, which may cause a loosening of the screws or a fracture of the plate. Should this be in the leg, by severing the tendo-Achillis, the parts will be retained much easier. One of the most difficult fractures I have found to hold is in the upper third of the thigh, where the upper fragment has a tendency to be tilted outward and forward as a result of the gluteus maximus. In such a case the lower part of the attachment of the muscle should be severed.

The plates are united to the bones by screws. The wound should be closed with the most extreme care. If there is any branch of surgery that requires more perfect technic than any other, it is in this class of work. The parts should be supported by plaster or some form of splint.

Should there be much loss of bone in the arm or leg, the space may be filled by using the accompanying bone and permitting one end to retain its vascular attachment. If the space should be next the upper end of the tibia, the patella may be utilized to procure union.

In 1901 I performed the first case of non-union by transplanting of bone from the lower animals to man, by retaining its vascular attachment.

The case was one of the osteomyelitis of the lower end of the tibia, where it was necessary to remove about five inches of bone. The fore-leg of a small dog, after being prepared, was amputated just above the tarsus, leaving the radius one inch longer than the ulna. The skin and muscles were separated from the dog's leg for five inches. The radius extending into the cavity of the tibia, the ulna along the side of the tibia, which was retained in position by wiring. The skin was closed to near the lower end of the wound, the dog's bone passing out at the lower angle. The large tendons of each leg were severed and each limb closed in plaster-of-Paris. Then the entire dog, except his head and genital organs and the leg of the man, were enclosed in plaster-of-Paris. Five weeks later the cast was removed and the bones sawed and placed in contact with the astragalus. Union was firm after a

few months and the bone gradually filled in the same size as the tibia. The case was reported in the transactions of the California State Society in 1902, and *American Medicine*, July 12, 1902.

## DISEASES AND INJURIES TO KNEE JOINT AND TREATMENT OF SAME.\*

By ETILIAN H. SMITH, M. D., San Francisco.

First, let me express my approbation of the term used by Robert Jones, of Liverpool, England, for this class of cases, that of derangement of the knee joint. Of all the major articulations of the human anatomy, none is more exposed to disease and injury than the knee joint. The more we know concerning afflictions of the knee joint, the more complex the matter becomes. We formerly designated these conditions under two heads—tubercular and non-tubercular. To the surgeon having wide experience in these cases, even with the help of the X-ray, this designation becomes inadequate. It is not always possible to say whether a knee joint is tubercular or non-tubercular. Many knee joints becoming deranged, because of an external injury and non-tubercular for an indefinite period, after such injury, become tubercular in time. We must frequently reserve our diagnosis as to the exact condition until we have had the case under observation for some length of time. As to the conditions which we may find in a deranged knee joint, they may comprise one of the following list of diseases. Synovitis with effusion; tubercular arthritis involving both the synovial membrane and the articular cartilage, or the cartilagenous structures of the joint with little involvement of the synovial structures. We may have a joint deranged by what may prove to be an arthritis deformans, in which many other articulations will be involved; we may have a loose piece of cartilage, as a result of an injury, which acts as a foreign body and in which there is no serious inflammatory condition present, but which, if neglected, frequently becomes tubercular; we may have a serious derangement of the knee joint, due to injury to the semi lunar cartilages, which, if treated, appropriately, will pursue a non-tubercular course, but which, if neglected, frequently undergoes tubercular infection; we may also have a derangement of the knee joint due to constant slight daily trauma, or to the peculiar occupation of the individual, which latter case is frequently not properly diagnosed, or appreciated, in its true light, because the conditions which cause the same are considered to be of not sufficient consequence to produce disease. We may frequently have a gouty condition, aggravated by occupation or injury, resulting in serious derangement of the knee joint. Experience has taught us that frequently the beginning of a serious derangement is a slightly bruised spot. In this bruised spot capillary stasis occurs. If the tubercular bacillus effect a lodgment in such spot, it is the ideal soil for the production of a colony. The cases of tuberculosis of the knee joint arising without memorable history of a serious injury, or perhaps, any injury at all, arise from the

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lodgment of tubercle bacillus within some part of the joint. How long it may take for such infection to manifest itself after having taken place must ever be left to speculation.

A condition which sometimes occurs, without any possible history of trauma, injury from occupation, or other exciting causes, is synovitis with effusion, due to infection from the micro-coccus lanceolatus, of "Frankel." One such case I wish to quote:

A previously healthy, young woman, married, mother of a large healthy infant, her husband particularly strong and healthy, no suspicion of tubercular disease or gonorrhea in either man or wife, had an effusion into the synovial sac of the right knee joint; no pain or inconvenience, until the synovial sac became greatly distended; no history of injury; the patient had never suffered from rheumatism; had never suffered from any condition referable to any joint in her whole anatomy; had always lead a most reputable life; not addicted to the use of alcoholic beverages or drugs; had never been seriously ill in her life; had never been exposed to any unusual hardship or engaged in any occupation bringing undue strain or irritation upon her knees, or any other articulation in her anatomy. For two weeks she sought no medical advice; then the effusion was withdrawn, plaster of paris dressing was applied, and the patient put to bed. Within forty-eight hours an enormous effusion had taken place in the left knee joint, apparently without provocation. No rise in temperature; no pain, except from pressure after the synovial sac had become greatly distended. Under strictest aseptic precaution, the effusion was withdrawn with an aspirator, and the fluid cultured. On blood serum a pure culture was obtained, of micro-coccus lanceolatus. No other organism was demonstrated, nor did the culture become contaminated for many days in the laboratory; no demonstrable morbid process developed in the articular cartilages, in either joint. Both joints recovered with perfect function, and remained well for fifteen months, when the same condition in a much less aggravated degree recurred in the left knee joint. Cultures were made on blood serum, agar and bullion. Due to a defective incubator, no results were obtained, but with the withdrawal of the fluid, application of plaster of paris dressing, the patient recovered within two weeks, and for several months has suffered no inconvenience.

A gouty condition, aggravated by constant irritation, as a peculiar daily occupation, may bring about serious derangement of the knee joint. Many are dubbed gouty, rheumatic, etc. The real diagnosis of such conditions is seriously befogged. An individual, who may be the subject of gout, and who has an occupation which brings particular stress on the knee joint, may suffer serious derangement of that joint, frequently resulting in the destruction of one or both of the semilunar cartilages. In these diseases of the semilunar cartilage, we find an outgrowth of bony prominences at the margin of the articular cartilage, where it merges into the bony part of the epiphysis. One such case I have in mind. A man, about thirty-six years of age, who had been many years addicted to the use of alcoholic beverages, consuming large quantities of beer daily, and whose occupation was that of repairing gas tanks, for illuminating gas, carried underneath railroad passenger coaches. In his work he was obliged to kneel almost constantly, and in making hurried repairs, frequently did so without any pad under his knees, kneeling on the hard gravel or plank surface between the tracks. Both knee joints showed a margin of articular cartilage

studded with a row of bony, bead-like prominences. One knee became seriously inflamed and painful. This knee he had bruised in such a manner as to loosen the anterior portion of the internal semilunar cartilage. The joint became so painful that he was obliged to enter a hospital. The indications were such as to make the removal of the internal semilunar cartilage a necessity—this will be referred to later.

*Treatment.*—The treatment of derangement of the knee joint must depend upon the careful diagnosis of the existing condition. Whether the joint should be opened or treated more conservatively, must depend upon the conditions present. One of the principal conditions which will decide as to the operative treatment of the joint, is locking in any degree of flexion. Any knee joint which becomes locked so as to compel the patient to take some time and particular exertion to fully extend the knee, is a positive indication for opening the joint. It means that some structural part of the joint either of the semilunar cartilages, or bone or calcified fatty tag, commonly known as a joint mouse, is acting as a foreign body in the joint, and is a source of irritation and unending trouble until removed. In the case above referred to where the patient's occupation had been that of a repairer of gas tanks, the internal semilunar cartilage was found to be not only loose, shifting in and out, frequently in such a manner as to cause locking of the joint, but shriveled, and dark brown in color, hard and having lost all semblance to its normal condition. This was removed, the joint placed in plaster of paris, and the man advised to seek another occupation. After several months, he returned to his occupation, not knowing what else to do, and has suffered no further trouble with his knee. Joints of this kind are prone to become tubercular, but where this does not occur, after an extended length of time, gross changes take place in the contour of one or both condyles of the femur. Because of the semi-flexed position in which the patient walks, the carcelus structure of the condyles is re-arranged and the former convexity of the part bearing the articular cartilage may become flattened and altered in shape. In connection with this condition, we may consider the operation known as arthroplasty. This sounds well for the instant and while seeming plausible, it is an unnecessary prolongation of a necessary operation without any compensation. Fascia, or other soft structure, pulled into a joint, can never be made to take the place of any cartilaginous structure. It will atrophy within a few weeks, and the result is no better and many times less satisfactory than the simple removal of the offending structure, and careful closing of the joint.

In opening the knee joint, it is practically never necessary to divide the patella, the quadriceps tendon, or any other important structure, which might interfere with the function of the joint. The straight incision about one-half inch internal to the inner margin of the patella, of sufficient length to expose the condyle of the femur and the synovial sac, above the patella, is all that is necessary. By this incision, no important structures are divided, the joint may be thoroughly explored, any offending



loose body removed, the joint closed and speedy recovery take place.

Catgut should not be used in closing the capsule of the joint. The structures are so thin, and ligamentous in character that absorption does not readily take place, and no matter how carefully and properly the catgut may have been prepared, it easily becomes infected from the skin, many days after the wound has apparently healed without infection. The figure of eight silkworm gut suture may be used, the loop of the suture closing the capsule of the joint, and the two ends of the suture closing the skin and fascia, and removed within a few days, leaving no foreign substance in the tissues. One thing that must be strictly observed in any of the above operations on the joint is the prevention of hemorrhage into the joint during the operation. Blood, even in small quantities, permitted to remain in the joint is one of the most potent causes of infection. All bleeding points should be carefully secured, before opening the capsule of the joint, and great care taken in all necessary manipulations so as to prevent, so far as possible, oozing of blood into the joint cavity, and in case blood oozes into the joint cavity it must be carefully and absolutely removed. If there has been no damage or injury to the articular cartilage of the joint, after being carefully closed, it may be put up in plaster of paris, extending from the ankle to the gluteal fold between the hip and thigh. Plaster of paris dressing of less length is useless. If the articular cartilage has been damaged, or injured, extension must be made with weight and pulley, or some form of extension splint, the joint being slightly flexed to relieve tension on the insertion of the hamstring tendons. Without extension or traction, as some surgeons prefer to call it, in the event of damage or injury to the articular structures, the pain is intolerable and is effectually relieved by extension.

One indication for the opening of a joint which is sometimes given undue prominence, is the detection of grating. Grating due to exposed bone, undergoing carious disease, is a late symptom of a badly disorganized joint, and means irreparable damage. It means that the function of a joint cannot be restored and is the result of serious infection. This sign is of no particular value, as the general condition is apparent. The more powerful flexor tendons within a very short time produce sub-luxation of the head of the tibia. With the Sayre's knee extension appliance, properly adjusted, extension is made on the joint relieving the pain and sub-luxation is reduced, and by the strapping of the joint as done by the late Dr. Sayre, the swelling and induration rapidly disappear, and the joint makes good recovery. A mixed infection producing pus in the joint, due to infection from pyogenic organisms, which results in acute abscess, absolutely prohibiting the application of plaster of paris or any ambulatory apparatus, rapidly destroying the structures of the joint, calls for immediate operative interference, rest in bed, extension with the weight and pulley and drainage. Some special cases may

be so acute as to call for amputation above the knee as a life-saving measure. These latter cases are exceedingly rare, and the condition is so acute as to admit of no doubt as to the proper procedure. This alternative is mentioned, as a rare exception. Nearly all cases of tubercular disease of the knee joint involving the cartilages make extension imperative. After all inflammatory symptoms have subsided and there is no pain or pressure over the epiphyseal line of the femur, the semi-lunar cartilages, or the coronary ligament, the extension may be removed, and a convalescent dressing of plaster of paris from the ankle to the gluteal fold may be substituted and the patient permitted to gradually bear weight on the limb. After some weeks, the plaster of paris dressing may be removed, and the patient allowed to walk with crutches, gradually moving the joint, and bearing weight upon it without support or dressing.

The limbering up process of a knee joint that has pursued a favorable course, is the most critical part of the treatment. To know when it is safe to remove all dressings, and to begin the restoration of the function of the joint is a very nice distinction in surgery.

I have not mentioned the matter of diet and personal habits in the handling of these cases, because it is presumed that all competent surgeons are familiar with such matters.

I have not mentioned the treatment of these conditions by the X-ray, as has sometimes been applied, actual cautery, blisters, painting with iodine, hot fomentations, etc., etc. Nor have I mentioned the treatment by Bier's passive congestion, and application of the hot air or baking process, which latter leads to inflammatory thickening of the synovial membrane, and most other soft structures about the joint, a condition which favors a chronic course of the original disease, and delays or prohibits recovery. Blisters and hot fomentations, and other empirical methods are useless and should have been obsolete many years ago. Bier's method has nothing to recommend it, and does not even relieve the pain, is positively without merit, permits the disease itself to produce irreparable damage, through loss of timely, proper mechanical treatment. It causes useless atrophy of the muscular structure and is rapidly becoming obsolete in these cases, and must eventually be forgotten. I do not wish to have you understand that I desire to arraign that most eminent surgeon, Dr. Bier. He has contributed much of great value to surgery, but Dr. Bier's method applied to derangements of the knee joint and especially those of an acute nature is wholly without merit and the sooner we recognize this fact the better for our patients.

To sum up: These cases yield immediately to proper mechanical treatment. Treated empirically, tinkered at by one indifferent method after another, they rapidly go to the bad. The exact condition must be diagnosed and first of all, appropriate mechanical treatment instituted. By this means both pain and inflammation subside and recovery begins immediately.

# PROCEEDINGS OF THE SAN FRANCISCO COUNTY MEDICAL SOCIETY.

Section on Medicine.

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## The Present Status of Cancer Investigation.

By PHILIP KING BROWN, M. D., San Francisco.

I am presenting this review of the subject, which is wholly abstracted from current literature on the subject, in the absence of Dr. Gilman, who is detained at home by illness.

**Etiology.** Injury and chronic inflammation seem to bear an almost constant relation to cancer. Not crushing injuries or single severe injuries, which are more likely to be followed by sarcoma, but repeated slight injury or irritation. Examples of this are shown in smokers' lip cancer; X-ray cancer of the hands in people constantly exposed to the rays; X-ray cancer developing from lupus after X-ray applications; tar and asphalt workers' cancer, referred to by Oliver; chimney sweeps' cancer of scrotum (Oliver, Butlin), 29 of the 32 cases in one London Hospital being in sweeps; bladder cancer in aniline workers (Leyberth); gallbladder cancer in 70 per cent. of cases associated with gall stones, and nearly 3 to 1 more common in women, just as gall stones are; epithelioma in carbon workers (Leuke); cancer in sailors following dermatitis from exposure (Uina); cancer of neck from rope injury, among natives of the Philippines who carry heavy burdens supported by rope around the head and neck (Gilman); Bilharzia carcinoma; cancer of the abdominal wall from the use by natives of India of small earthenware stoves held next to the abdomen; breast cancer in women, particularly after chronic mastitis (Leaf); pyloric cancer on ulcer base (McCarty and the Mayo brothers, Moynihan and others); uterus cancer, more common after cervical injury and inflammation (Cullen); betel leaves cancer of inner side of cheek in persons chewing the leaves, always on side where stuff is stored in the mouth.

Of negative value, is absence of cancer of penis in Jews and Mohammedans, both of whom practice circumcision, and therefore chronic balanitis the common etiological factor is rare. In 100 cases of cancer of the penis in the Massachusetts General Hospital, not one in a Jew, and Bashford has never seen it in a Mohammedan.

There are three interesting ideas regarding the growth of cancers that are worth mentioning, since there is argument to support each one.

1st. Substances exist under extreme or unusual conditions of the body that stimulate cell proliferations. (Spuda, Loeb, Fischer, Starling).

2nd. Substances normally present in the body affording protection vs. unusual cell proliferation may be absent temporarily or permanently (Beard, Leyden and Bergall).

3rd. Cancer cells have a greater proliferative quality because they have a greater attraction to nutritive material (Albrecht and Erlich).

In regard to the first hypothesis Conheim's views form the basis. He argues that tumors arise from cells "that in the course of development have been displaced from their normal relationship, or have failed to undergo a normal atrophy." He is able to show such groups of cells in both infant and adult bodies, and calls them "embryonal rests." They have been found very commonly by some observers, and the natural question arises as to why some and not others of these "rests" are awakened into proliferative activity, and under what conditions are they so awakened.

Cancer cells as such do not exist; they are merely ordinary epithelial cells possessed of a dynamic force which either causes them to grow unusually when normal epithelium does not grow in the same way, or causes them to be influenced by nutritive conditions in a way that normal cells are not influenced. Pathologists have shown us many facts that are interesting in this connection. First, the normal

fertilized ovum in the human being, if lodged elsewhere than in the uterus, is a parasite growing at the expense of its host, invading the tissue of the fallopian tube, for example, just like a cancer, until finally it eats its way through, and the too often fatal results follow. Second, Gibbons has shown chronically inflamed glands in Hodgkin's disease actually invading the walls of blood vessels, that is, breaking through basement membrane and invading the tissues of the host like cancers. Third, Loeb found that injuring the uterine wall in pregnant guinea pigs, led to proliferation of decidual tissue at the point of injury. This does not occur if the corpora lutea is removed before injury. Fourth, Starling found that virgin rabbits injected subcutaneously with rabbit embryo emulsion show an hypertrophy of the mammary glands, and rabbits that have borne young show lactation in addition to this.

The second hypothesis, that there is frequently absent from the body substance which when present serve a protective function, and that in this absence cell proliferation may result under favoring excitation, has also some facts to support it, for example the altered nutrition of a part frequently injured or irritated. The possible neutralization of substances needed for protection vs. invasion of cells by products of decomposition resulting from injury as in cancer of the breast or by chemical substances causing the irritation, as in cancer of the stomach. The use of normally protecting cells for other purposes because of the irritated conditions of the part in question. It is hard to explain the complete absence of digestive fluid from the stomach in the presence of some cancers involving very small areas. Beard's use of trypsin and amylopsin in the treatment of cancer is along this line of reasoning.

Erlich's idea, the basis of the third hypothesis, of a greater affinity of cancer cells over normal for nutritive substances, brings us back to the question of the dynamics that makes one epithelial cell normal and the other a part of a cancer.

**Immunity Experiments.** Immunizing against cancer in animals, especially mice, has brought up a close study of the relation of cytotoxic and of anaphylaxis to this end. It has been shown that an animal sensitized to one organ of another species develops in his blood a substance which when injected into an animal of the species from which the organ was taken, will cause necrotic changes in that organ. An example of this is seen in Beebe and Rogers' serum for exophthalmic goitre. Any foreign proteid, when injected into a living animal, sensitizes that animal to that particular proteid, so that a second injection of enough of the same proteid, harmless as the initial injection may have been, may cause the death of the animal. Vaughn, Pierce and Anderson and others have shown the extent to which this may be carried and it is now well understood that cytolytic sera is specific for the animal species furnishing the cells and not necessarily for any special type of cell from the animal. About this fact there is, however, still some doubt.

Erlich's studies led him to believe that the artificial immunity to tumors in lower animals was not blasto-specific, but Bashford showed definitely that it was the epithelial covering of the embryo alone which produced immunity in mice against epithelial tumors. Von Dungern described a specific epitheliolysin in the serum of rabbits previously injected with ciliated epithelium from the trachea of the cow, and suggested the possibility of developing sera for different epithelial cells. This, however, has thus far been unsuccessful, and attempts to produce a specific antiserum for cancer have been unsuccessful.

Among the more recent investigations upon immunity to tumors, those of von Dungern and Coea, "Zeitschrift für Immunitätsforschung und experimentelle Therapie, Vol. 11, 24 Mar., 1909, p. 391," are perhaps the most significant in their bearing upon the problem of immunization against cancer in human beings.



Von Dungern excised a young, rapidly growing, moderately malignant sarcoma, which had been derived originally from a wild hare, and had been transplanted to the laboratory rabbit, and inoculated with it two groups of rabbits. Group A consisted of normal, i. e., hitherto unused animals, group B had been previously inoculated with an emulsion of an identical tumor derived from another transplant. Among the second group were animals in which the tumor resulting from the first inoculation was still present as well as animals in which the resulting growth had been excised, or had been spontaneously absorbed, and also animals in which the first inoculation had failed altogether. Although every individual of group A developed large tumors, in not one animal of group B was the second inoculation successful. Furthermore, the tumors still present in some of the members of group B, which were derived from primary inoculation, softened after the second injection of tumor material, and were converted into sterile abscesses.

There is considerable question as to what is the exact explanation for the disappearance of the sarcoma in von Dungern and Coca's original experiments published in 1909. Whether there be a protective function exercised by basement membrane, or a definite cytotoxin produced in the blood, is a matter of controversy. In the one case, the disappearance of the tumor would be practically by starvation, the body being fortified against this parasitic action of the tumor. The other hypothesis supposes a selective and specific cytotoxin with destructive power for cancer epithelium and not for normal epithelium.

Imperial Cancer Research Fund Report.—Notes. *Lancet*, July 23, 1910, page 265.—Emphasis placed on the immediate influence of irritation. Experimental sarcoma produced "from what have been the non-malignant connective tissues of carcinoma." Occurrence is rare and has been noted in only two strains of transplantable carcinoma, one strain showed the change in only a small number of animals and was only completed after several repeated transplantations. In the other the transformation was more frequent and rapid, and occurred at times in one transference. Transplantations of spontaneous tumors in the same animal are almost invariably successful, but in other animals of the same species they frequently fail whether the inoculated animals are young or old, healthy or cancerous. For illustration, in 55 re-inoculations of cancerous animals with their own tumors 54 were positive; 77 inoculations of spontaneous tumors in other spontaneously affected mice only 5 were positive. (American observers have met generally with a larger percentage of successes). Bashford's experiments would seem to show that the cancer cell was much more dangerous to the host than to other individuals.

Young animals furnish more suitable soil than older ones, and it is definitely shown in propagating tumors that the general biological properties show a relative constancy, but occasionally there are changes difficult to account for. "All cancerous mice do not exhibit an equally suitable soil for tumors in general. Spontaneous variations of the parenchyma cells of tumors during propagation suggest that we have a repetition, in a minor degree, of the cellular processes responsible for the primary transformation of non-cancerous into cancerous tissue. Just as cellular changes occurring during propagation may transform a slow-growing tumor into one rapidly proliferating, so in the tissues prior to cancerous growth the responsive proliferation of cells may pass into the progressive, independent proliferation of cancer."

Successful vaccination against cancer does not prevent the development of spontaneous cancer.

Methods successful in preventing or retarding the growth of transplantable tumors have been without effect in the growth of spontaneous tumors.

Thirty-four strains were examined for spirochetes with negative results. Reference is made to the fact that they have been found in mice without tumors.

Regarding immunization Bashford claims that resistance can be induced only by employment of living tissue. No success has been obtained by him through disintegration of cancer cells of providing for the continuance of the powers of inducing resistance and at the same time destroying its power of growth.

Bashford records the failure of the experiment in 25 spontaneous tumors to prevent recurrence or dissemination or prevent successful re-inoculation of spontaneously affected animals with their own tumors.

Notes from the Philippine Journal of Science, January, 1910.—Von Dungern and Gorowitz experiments show the development of hyper-sensitivity to cancer proteids in the patient with cancer. There is an increased reaction from subcutaneous inoculation with extract from the patient's own tumor, whereas in healthy individuals no reaction occurred, nor was there any increased reaction in the patients injected with extracts from the tumors of others. It has been repeatedly shown that the organism can be sensitized against its own tissues even to the point of destroying them, and these experiments of Gorowitz would seem to indicate that a cancer case may be sensitized against its own tumor.

Immunization in human beings—Von Leyden and E. Blumenthal (*Deut. Med. Woch.*, 1902, 28-36), attempted to produce active immunity in a cancer patient against his own cancer, by injecting into the patient some of the tumor tissue of which he was the host. In three instances they regarded that they had averted metastases and caused reduction in the size of affected glands.

Von Dungern and Ranzi have conducted similar experiments with cancer patients; Ranzi using carbonized extracts of their own tumor tissue.

Vaughn has reported a number of cases treated with small amounts of tumor material injected every three or four days, without proving anything further than a possible influencing of the original growth. He discusses the question from the point of view of a possible sensitization of the patient against his own tumor by injection into him of material from a similar tumor in another case, pointing out that a round-celled sarcoma was favorably influenced when used on another patient where it had failed as an autogenous vaccine.

Gay (Boston, *Med. & Surg. Jr.*, Aug. 28, '09) from animal experiment showed that during what he termed the premetastatic period, the resistance of the individual could be increased by reinoculation of the tumor or products of it, to such an extent as to cause resorption of the original tumor. Gay further points out in the Harvard Cancer Commission lecture of 1909 that this premetastatic period lasted about 35 days. If the second implantation was made after this period, both it and the first implantation continued to grow. These experiments were controlled and corresponded to the findings of Bridre, Gaylord and especially Stricker.

Tyzzar, Harvard C. C. Lectures, 1909, p. 6.—After filtration of an emulsion of tumor tissue through ordinary filter paper, the inoculation of the filtrate has been attended (in animals) with negative results. If the tissue of inoculable tumors is kept at room temperature on its removal from the body, it soon loses its property of producing tumors on inoculation, and this change takes place still more rapidly if incubated at body temperature.

Secondary transplantation of tumors has been shown to be preventable by a preliminary inoculation of normal mouse tissue. Rapidly growing tumors of transplantary growth or slow growing tumors have known tendency to spontaneous absorption. In many of these cases there is even cure of the original tumors where the possibility of spontaneous cure could have been excluded. Bashford warns that this result cannot be obtained in the case of spontaneous tumors, and adds, "Still more emphatically do we warn against applying to the human subject methods which after long perseverance have

enabled us to arrest the growth and even to cure animals of transplanted tumors."

The following points being definitely established by various investigators, a more complete incorporation of cancer material into a vaccine seemed justified as an experiment:

First: The second inoculation of tumors in mice in which the first plant had grown, had a distinct destructive effect upon the first plant, and in turn disappeared itself.

Second: Cancer is not transferable in animals however susceptible they may be, if the inoculated material is kept for some time outside the body even if kept at body temperature. The danger therefore of reproducing cancer is very small and no instance is reported among surgeons where cancer has followed injury of the surgeon's hands by cancer-contaminated instruments.

Third: There had been noted by a good many observers the definite influence on cancer tissue where extracts and emulsions of other cancers had been injected into the patient with cancer.

Gilman and Coca, recognizing all these facts and the hitherto experimental work on human cases, determined therefore in a series of inoperable carcinomas, to try the effect of an emulsion of the whole tumor, thus including in their therapeutic agent all that could possibly be included in the various extracts which had been tried by others, as well as any virtue that might lie in the body of the cell itself. Their initial report may be found in the *Philippine Journal of Science*, January, 1910. It gives some encouraging results in the relief of pain and cachexia and shows that in some cases where parts of the inoperable tumor were removed after treatment, that some degenerative changes had taken place.

**Discussion.**—H. A. L. Ryfkogel: Dr. Brown has gone over the subject so thoroughly that there seems to be nothing to add, except that he failed to mention some experiments of Blumenthal. I have seen in one of the recent numbers of the *Medizinische Klinische Wochenschrift* a report on some of the experimental work performed by Blumenthal on some implantation tumors of rats. In 1904 he also published an article of similar work on carcinoma of rats, in which the disappearance of the carcinoma was caused by means of heterologous vaccine. A rat with a rectal carcinoma was injected with an emulsion made from a carcinoma of another rat, the result being a cure. More recently he has made some studies on sarcoma of the rat, and found that it would disappear when treated by vaccine, and he also was able to treat it by a thoroughly autolyzed vaccine, and in this way claimed to have entirely destroyed the possibility of producing new inoculation tumors such as occurred in some of the cases treated by Gilman's method. He found that autolyzed vaccine was of no use after 21 days; that after 8 days it was not as active as it had been immediately after its preparation. His method of preparing the vaccine consists of grinding up the tissue as Dr. Gilman does, then shaking it thoroughly with several times its volume of chloroform water and incubating it for 72 hours. He found that in the animals upon which this autolyzed vaccine was used, that in no case did it produce inoculation tumors, although the original tumor injected did produce tumors. He found that if this autolyzed vaccine was injected into animals in which the same growth had been thoroughly established, that the tumor rapidly softened and disappeared. He tried no human cases with this method.

## THE STATUS OF OUR VACCINE WORK IN CANCER.

By P. K. GILMAN, M. D.

Following experimental work, more particularly that of Van Dungen with whom one of us, Dr. Coca, worked for some months, we determined to apply to the human the methods of "vaccine" treatment in carcinoma that has been tried with various results on lower animals.

In an attempt to secure a "vaccine" against a malignant growth, we used various methods of pre-

paration; extracts of tumors, infusions, and differently prepared comminuted malignant tissue. We decided finally that a "vaccine" prepared as follows gave the best results:

"About 15 to 20 grams of carcinomatous tissue is divided as fully as possible with a sharp pair of sterile scissors, then run through a vaccine grinder which gives a pulpy material of even consistence. The addition of a ccm of glycerin before passing the material through the grinder greatly facilitates the passage through the machine. The resulting pulp is shaken up in 20 cc of sterile saline solution and centrifugated for a few moments at a low speed to throw down coarse connective tissue fibres. The supernatant fluid is decanted with the ground carcinoma cells, enough 5% carbolic acid is added to produce a 0.5% solution, and after standing 4 to 6 hours the dose of vaccine is ready to inject."

Injection of the entire amount is made into the subcutaneous tissue; we have used the tissue of the abdominal wall, care being taken to so distribute the fluid as to avoid tension.

The extra malignant tissue we have stored until needed, keeping it sterile in a solidly frozen condition. Some tumors have been kept for 6 months before being used to prepare a "vaccine."

In a series of cases in Manila we have administered such a "vaccine," the cases embracing practically all stages of carcinomatous disease, from early operable cases through possibly operable to absolutely inoperable cases in the last stages.

The injection of the "vaccine" is followed in the majority of the cases by a local, as well as a general reaction. Locally there occurs about the point of injection a painful swelling; the skin is from 24 to 48 hours becoming quite firmly indurated and tender. If there is not too great tension or if there are present no micro-organisms, the swelling lessens in another 24 hours, and gradually subsides, losing its angry appearance and tenderness. Complete absorption may be slow, a more or less firm nodule persisting for several days. This, however, has always finally disappeared, leaving no palpable residue. Some of the masses have progressed to suppuration, the product of the breaking down, however, being sterile, and probably the result of too great tension at the time of inoculation. In but one or two cases have micro-organisms been obtained from the contents of such an "abscess."

The general reaction which has occurred in fewer of the cases, and upon which we do not at present lay great emphasis, consists in a rise in temperature of from 2 to 4 degrees, a general feeling of unrest and malaise, headache and at times slight chilly feelings. These symptoms usually come on about the second day, and subside the day following.

In each case in our series has an operation been done, and it has been just as thorough an operation as the condition of the disease allowed and the condition of the patient permitted. In those patients of the series where a prognosis was favorable, and the disease apparently eradicated, time only will show the result.

In a second group also when an operative cure was possible, though not probable the same test must be waited for.

In the cases which were inoperable, where definite carcinomatous material was necessarily unrecovered at operation, the results of repeated injections of "vaccine" at intervals of two weeks have been instructive.

In brief, cachexia is in practically every case cleared up in a great degree following the injection of "vaccine" in three to five days. The mental condition of the patient is improved, the pain—if present—is lessened, the patient has a better appetite, the color of the mucous membranes improves. This change is marked in a very large majority of the cases and only in those patients who cannot "react," being too far gone, has it failed to follow the use of "vaccine."

About the seventh or eighth day following the injection, a change is noted in the carcinoma tissue



remaining in the body. Its character changes from a previously firm mass to a much softer tissue, some cases progressing to a complete breaking down of nodules, 3.5 cm. in size and the area requiring evacuation of the broken down detritus of cellular materials free from micro-organisms. Where masses of cancer have been large, a marked increase in local temperature has been noted both in the cancer itself and in the body tissues immediately surrounding the growth showing active circulatory changes.

In three cases of inoperable carcinoma of the cervix, in two of the buccal mucosa, one of the parotid, two of the cervical glands, and two of the breast, where undoubted cancer was left in the patient, nodules from one to four cm. in size have softened and disappeared, and in other cases—two of the neck,—have masses retrograded sufficiently in size to allow of a more complete removal by the knife than would have been possible otherwise.

The best results have been obtained with several injections at intervals of two weeks. How many injections to give we do not at present know.

Dr. Coca and I left Manila last March and July respectively, and at the time of my leaving but three of the above class of cases had recurred sufficiently to be noted and produce symptoms, all of the series being then one year old—since operation. How long this favorable state will last it is of course impossible to state, but from our work, of which this is a very brief and hurried scanning, we believe the following conclusions are of interest and importance:

First. Large amounts of carcinoma tissue, if carefully prepared and freely comminuted, may be safely introduced into the human system with no unfavorable results.

Second. Such injections produce an unfavorable effect on carcinomatous growths, causing retrograde changes that may be demonstrated under the microscope and consisting in a granular degeneration of the cancer cells, an infiltration of round cells and macrophage type of cells, and an excessive growth of connective tissue extending into the degenerating tumor.

Third. Cachexia is cleared up to varying degrees.

Dr. Coca, to whom all credit is due in this work, is at present at work on the problem in Dr. Beebe's laboratory\* in New York. Lately at Dr. Beebe's suggestion we have preserved the tissue in a ground state by desiccating it over acid and spreading it out on glass plates for future use.

A cure of cancer is not claimed by us. We do claim the results noted in the conclusions and trust the work may lead in some way to the ultimate means of a cure.

\* Laboratory of Experimental Therapeutics, Cornell University.

#### Meeting of December 20, 1910.

#### A Brief Consideration of the Operative Treatment of Hyperthyroidism.

By WALLACE I. TERRY, M. D., San Francisco.

The term hyperthyroidism is here used as expressing more of the pathology of the condition under consideration and as being less objectionable than the other terms, exophthalmic goiter, Graves', Basedow's or Parry's disease.

The signs and symptoms which particularly distinguish the disease are: goiter, exophthalmos, tachycardia, nervousness, tremors, vasomotor disturbances and changes in the blood. Some of these symptoms may be absent, but as a rule the diagnosis offers but little difficulty. One should not hastily conclude that goiter is absent because the thyroid is not apparently enlarged—a process of the gland may be concealed behind the clavicle or sternum or lie deeply in behind the muscles of the neck. That the disease is primarily due to the thyroid gland seems to be so well established, particularly by the results of surgical treatment and organotherapy, as to admit of no dispute. There are, however, those who believe in other causes, such as Federn's theory of increased blood pressure due to absorption of poison from the atonic bowel and the older theory of nervous origin of the disease.

It was long ago demonstrated that the removal of sufficient thyroid tissue led to the cure of hyperthyroidism, but it was not until the technic of thyroidectomy had been perfected by European surgeons, and particularly by Kocher, that these cases were considered surgical. In the United States previous to 1902 but few operations for hyperthyroidism were reported; since that time the number has increased rapidly, so that more than a thousand are on record. There are several districts in this country where goiter is endemic, particularly along the Great Lakes, and in California there are a few small goitrous districts, as was pointed out by Moffitt in 1905. Cases of hyperthyroidism are found in these districts, but in my limited experience the proportion of Basedow cases to the simple goiters is greater in California than in the territory near the Great Lakes.

The pathology of the thyroid in cases of hyperthyroidism is of interest particularly as related to therapy. The researches of McCallum and others have established that there is a marked increase of the active epithelium lining the acini—the acini may be increased in number, they may be packed with epithelium or they may contain papillomatous ingrowths of epithelium. Marine has shown that in dogs active hyperplasia of the thyroid often undergoes a change to a colloid condition, either spontaneously or under the influence of iodine. He considers this process of reversion physiological and not pathological, and furthermore that the colloid goiter is the nearest approach to normal in its iodine content which is reached by a hyperplastic gland.

**Indications for surgical treatment of hyperthyroidism:** After rational medical treatment for a brief time without marked benefit, these cases are properly surgical—by a brief time is meant not more than three or four weeks. Some cases have been cured by rest alone, others are favorably influenced by rest plus such drugs as bromides, digitalis, strophanthus and iodides. In view of the work of Marine, it seems probable that iodine simply brings about a colloid change in a gland with active hyperplasia, and thus reduces the amount of toxic substance which is elaborated by the epithelium. Organotherapy has been of use in some cases, and Rogers and Beebe report a number of cures with their serum, although other observers have not met with the same success. The point I particularly wish to emphasize, however, is that medical treatment should not be continued unless the patient is rapidly improving, for the damage to the heart and the nervous system from hyperthyroidism is often irreparable. Despite the fact, though, that late or neglected cases are bad surgical risks, I do not think the surgeon should refuse to operate on them after proper preparation, for many can be saved from an almost inevitable fatal result. One distinguished surgeon in this country is quoted as refusing to operate on cases showing edema, irregular heart action and albuminuria with casts. If it be with the idea of presenting good operative statistics, then it is wrong. In my series of cases I have had five extremely severe ones and all have been immensely benefited—indeed I do not hesitate to say their lives have been saved by operation.

**Preparation for operation:** In the majority of cases, rest in bed with an ice bag over the heart and moderate doses of bromides are of value in putting patients suffering from hyperthyroidism in better condition for operation. The psychic element in these cases should also be studied and the surgeon should endeavor to put himself en rapport with the patient. The method of Crile of daily inhalations of essential oils and later the administration of ether and the so-called "stealing of the goiter" has some advantages and has been employed by me in two cases with success, but deception of this sort will soon be known to the laity and the method will lose its value.

Ligation of one or more thyroid arteries is a very valuable preparatory measure in the severer grades of hyperthyroidism. It is ordinarily a simple oper-

ation as applied to the superior thyroid vessels and leads to marked improvement within a few weeks. As soon as the patient has received the maximum benefit from this minor operation, the removal of one or both lobes of the thyroid should be undertaken, for with the growth of new blood vessels the full circulation will be re-established and the toxic symptoms will be aggravated.

**Thyroidectomy:** The technical details of the operations are fully given in many publications, but there are a few points from my own experience which I desire to mention. The incision best adapted for the majority of cases is the collar incision of Kocher. When the goiter is small it can with cosmetic advantage be made low down, but in the large goiters the working space is limited by the sternomastoid muscles and the superior thyroid vessels are more difficult to reach. After high division of the ribbon muscles and exposure of the gland capsule one lobe should be dislocated by inward rotation, thereby saving much time in the ligation of the vessels and the disposition of the posterior part of the capsule. It happens occasionally that the capsule is densely adherent to the surrounding structures, sometimes from the effects of irritants to the skin, but more often from a low grade inflammatory process in the thyroid. Whether one or both lobes should be removed is to be determined at the time of operation. The right lobe is generally larger than the left and the excision of it with or without ligation of the left superior thyroid vessels may be sufficient. But one should not, for the sake of completing the operation at one sitting, tax the resistance of the patient to the utmost. It is better in the severe cases to do a comparatively minor operation and permit the patient to make all the gain possible before proceeding with the next. Patients are propped up in bed soon after operation and are usually allowed to get up in three or four days. The after treatment for the first forty-eight hours is bromides in moderate doses per rectum and cold to the precordium—a treatment which was unfortunately omitted in the only fatal case of my series.

**Anesthetics:** With a trained anesthetist and the use of nitrous oxide for the preliminary anesthesia, I do not now hesitate to operate on certain cases of hyperthyroidism under general anesthesia. I prefer to use nitrous oxide and oxygen for the entire operation when possible, both because of its safety and the absence of post-operative vomiting, but ether by the drop method can usually be substituted for some of the nitrous oxide. In the majority of my cases, however, I have used local anesthesia. The selection of the anesthetic for the particular case depends upon several factors, chief of which are the psychic, the condition of the heart, lungs and kidneys, and the size and location of the goiter.

**Personal results:** Out of a total of 56 operative cases of goiter, 41 have been cases of hyperthyroidism, and of these one case died within 48 hours of acute thyroidism, making a mortality of 1.8% in the entire series, or 2.4% in the cases of hyperthyroidism.

Out of the 41 cases of hyperthyroidism there were 7 males and 34 females—the age varied from 16 to 62, the average being 34—the duration of Basedow symptoms from 6 months to 16 years—the right lobe of the thyroid was the larger in 29 cases, in 5 cases the left lobe, in the remainder the lobes were equal or the isthmus was principally affected. Exophthalmos was present in 35 cases, absent in 4 and not known in 2 cases, the histories of which were lost. In 8 cases the Basedow symptoms were mild, in 28 they were marked, and 5 they were extreme. The elapsed time since operation is from two weeks to seven years. Thirty patients have been cured, 5 are much improved but have permanent changes in their hearts or nervous systems, 2 patients cannot be traced but were well three months after operation, 3 cases are too recent to determine results, and one patient died. Differential blood counts are re-

corded in 10 cases and all but one showed either a relative or an absolute lymphocytosis before operation. As the patients begin to improve after operation, the blood count becomes more normal. I have the pathological reports of 22 excised goiters, and while in a general way the glands conform to Wilson's classification, they would have to be studied more thoroughly and in much larger numbers to either confirm or disprove his statement that in a large proportion of cases the symptoms exhibited by the patient can be read from the microscopic picture.

**Discussion.**—Emmet Rixford: I am very much interested in Dr. Terry's paper, and I would be glad to and do praise it very highly, not merely for the fact that he has made an excellent résumé of the subject, but because I agree most heartily with practically everything he has said. My own interest in the thyroid gland was developed as a student with the late Dr. Lane in 1889-'91. I mention this because Dr. Terry stated that few thyroidectomies were published before 1900. This is true, yet Dr. Lane performed a great many thyroidectomies, the first in 1858 or 1859. In 1896 he published 18 cases operated upon since 1877. It is interesting in following his work to go back and look upon his original technic, which was to open the capsule and shell out a large proportion of the gland, catching his vessels and using silk ligatures, and draining the wound, and his results compare favorably with the results of the better technic of to-day. He avoided the posterior part of the gland as well as the recurrent laryngeal nerve by ligating en masse and devised a blunt, pointed transfixing forceps to carry his ligatures. The first case of hyperthyroidism which I had ever seen was a case in which I gave the anesthetic for Dr. Lane in 1889. The patient's pulse averaged 140 during the operation. I followed the case as student-nurse, the pulse increasing continually until I counted 200 and even faster by counting every other beat. The heart finally gave out and the patient died on the 5th day. It was a typical case of hyperthyroidism. I think there is no question of the correctness of Dr. Terry's observation that exophthalmic goitre is more common here in proportion to the total number of goitres than in many places. Dr. Terry has said very little about the technic. Possibly the technic is well enough understood, but the choice of cases for the various operations is, from a technical standpoint, a matter of very great importance. The following are questions of importance: In what cases ligation shall be used? Shall the ligation be all that is done in the case, or shall a subsequent thyroidectomy be performed? It would seem from case reports that the ligation is an operation with a considerable mortality, but that mortality is probably to be explained very largely on the fact that the ligation is used principally in the very bad cases. Of course if one has a "statistical conscience" and ligates the arteries in the milder cases, he produces a good statistical record. Some part of post-operative hyperthyroidism follows handling and bruising of the gland in the operation, and especially, as I think Chas. Mayo has pointed out, the handling of those parts of the gland which are not removed. My own cases of exophthalmic goitre I have not yet in shape for reporting, but I have operated upon 23 or 24 cases of exophthalmic goitre in the last 10 years, of which 7 or 8 were of the very extreme type. I have not had a death, though in 2 cases a second operation was required. In none of these cases was a preliminary ligation performed. In a few early cases local anesthesia was used, but in most of them ether was used as a general anesthetic. We often make the mistake of making too small an incision if we use, as I have in the last 8 or 10 years, the transverse incision for cosmetic purposes. But one ought to do a rapid operation, and in order to do a rapid operation the surgeon should make a generous incision. In most cases it would be well to cut the depressor muscles of the hyoid, either above or below, at a distance from the nerve supply. One of the most important



points of the subject from a practical standpoint is how much of the gland should be taken away? Is all of the gland pathological? Or is only a part pathological? Our knowledge of the pathology is not yet competent to answer these questions. We have to do it by rule of thumb, and leave a reasonable amount of thyroid tissue,—it may be too little, or it may be a little too much. If the piece left is only a little too small, transitory symptoms of myxedema will supervene, to subside as the piece undergoes compensatory hypertrophy. If too large a piece is left, or if the piece left is pathological, the symptoms will not be satisfactorily relieved and a subsequent operation is indicated. In one of my cases a second operation was required because of the rapid development of an adenoma in the portion of gland left behind; enucleation relieved the nervous symptoms entirely. The exophthalmos is the most refractory of the manifestations of exophthalmic goitre and one of the most distressing. Partial thyroidectomy is not always followed by disappearance of the exophthalmos. Particularly to be guarded against are the cases of exophthalmos without enlargement of the thyroid gland.

Geo. Rothganger: There is one point in the treatment after operation which was not touched upon, and that is the tremendous amount of care which should be taken in the after treatment and undoubtedly much of the recurrence is due to the lack of that care. A very important point is the great value of early diagnosis so that the cases are not allowed to go to the extreme hyperthyroidism. Some cannot be distinguished from neurasthenia, some from ordinary common goitre, and only when careful examination is made for hyperthyroid symptoms are they detected.

Wallace I. Terry: Regarding the question of ligation of thyroid vessels, I consider it an important preliminary step in many cases. It effects a reduction in the size of the gland, and the general condition of the patients is much improved. The maximum benefit from this simple operation is usually derived in 2 or 3 months and when it is apparent that the patient is not gaining any more, one or both lobes of the thyroid should be removed. As a rule the superior thyroids are more accessible than the inferior and they can easily be ligated under local anesthesia, through small incisions. There should be no shock from this procedure. As regards the amount of thyroid tissue to be left after an excision, one should aim to preserve approximately half an ounce to an ounce of sound thyroid substance.

#### Section on Surgery; January 17th, 1911.

##### Exhibition of Case.

By ETHAN SMITH, M. D., San Francisco.

In relation with this case Dr. Freytag will exhibit plates which will show the complicated fracture of the femur. This child was injured in the Park, being struck by a swing containing several children. She was knocked down and dragged underneath the swing. According to the radiograph, as nearly as can be made out, there was a separation of the epiphysis of the head of the femur and injury to the cotyloid cartilage. The margin of the acetabulum is damaged but the condition does not show in this plate. It does, however, show in a plate taken some weeks later. There was a fracture of the neck of the femur at its base and a longitudinal fracture of the upper third of the shaft of the femur in two lines, about an inch apart on its anterior aspect. The extravasation of blood was something enormous, extending almost to the umbilicus and down to the lower third of the thigh. There was no operation done; the case was treated conservatively, and the

result I consider to be fairly good. This next plate shows that in front of the neck of the femur there is still quite a prominence. The case was treated with extension by weight and pulley, and sandbags extending from the lower ribs to the heel on the outside, and from perineum to heel on the inside.

Harry M. Sherman: I would like to ask a little information in regard to this case. Dr. Smith stated that he had been treating by traction and sandbags, but he did not mention the amount of traction.

Ethan Smith: I used about 10 lbs. for 6 weeks. Ten pounds at the beginning was sufficient to maintain the extremity at equal length with its fellow, with the foot in the normal line; then the weight was reduced to 6 lbs. and that seemed to hold it perfectly. I find the sandbags are a great aid in maintaining traction. At the time that I saw the case and Dr. Watkins insisted upon my taking charge of it, I thought any operative procedure would have been disastrous. The tissues had stood all the damage they could at the time.

James T. Watkins: When I saw this case Dr. Frisbie had already, upon the previous day, applied an emergency side splint. I was called because Dr. Smith, to whom Dr. Eklund would naturally have turned, was away on his vacation. I was myself at San Mateo, and phoned Dr. Eklund to try to have Dr. Crane or Dr. McChesney meet me at the hospital. He was so fortunate as to find Dr. Crane. On manipulative examination the condition appeared to be worse than even Dr. Freytag's excellent X-ray seemed to indicate. It was a perfectly awful fracture. The shaft of the thigh was bowed sharply forward suggesting a greenstick fracture here. There was undoubtedly an impaction of the base of the neck into the great trochanter, and finally an epiphyseal separation at junction of head and neck. Upon rotating the leg outward the decapitated neck could be felt just beneath the skin in Scarpa's space. More than 12 hours had elapsed since the initial injury, so it seemed to me that operation was, for the time being, out of the question. Had I seen it early enough I should have been tempted to cut down on it and peg or nail it together. As it was, the limb was put up in plaster of paris in abduction extension and slight inward rotation. Dr. Crane concurred in the advisability of this step and kindly assisted me. Shortly afterward Dr. Smith returned from the country and the case was turned over to him. I have not seen it since. Considering the seriousness of the original condition, I think the result is extraordinarily good and I desire to congratulate Dr. Smith upon it.

#### REPORT OF FOUR CASES OF TUMOR OF THE CEREBELLO-PONTILE ANGLE.

By MILTON B. LENNON, M. D., San Francisco.

The following four cases illustrate better than any didactic lecture the symptoms of tumor of the cerebello-pontile angle.

All four cases point out the necessity of a most painstaking examination of every patient presenting himself with the story of deafness in one ear. Such an examination cannot be too emphatically insisted upon. We will note in the following case reports that one of our patients had a buzzing sound in his

right ear with impaired hearing seven years before we saw him; a second patient dated his deafness four years back; a third consulted an ear specialist for a deafness which came on "without pain or ache" one year before she presented herself to us, without exciting his suspicion; the fourth patient had other symptoms coincident with his impaired hearing, but no earlier symptoms.

The absence of classical symptoms of intracranial growth should not mislead us. Three of our patients had no headache, one despite the most exaggerated symptoms of nerve pressure had no papilledema. Staggering which is so often associated with tumor of the cerebello-pontile angle was lacking in two cases. Unilateral deafness therefore should ever excite our suspicion and lead to frequent and thorough examination of the patient. The otologist must therefore extend his examination beyond the ear, he must be ready to say not only that a man is deaf, but enquire into the cause of his deafness.

I now wish to give the plain facts of the four cases.

Harry W., 24 years of age, was admitted to the University Hospital in the service of Prof. Harry Sherman on May 14, 1909. Previous Illness. Denies Venereal. As a child was struck over the right parietal bone above the ear. Four years ago was struck with a sledge hammer over the junction of the right parietal and occipital bones.

Present Illness. Four years ago the patient noted that the hearing of his left ear was impaired. One year ago his brother noted that he staggered as he walked. Eleven months ago the first headache was felt, and about this time there occurred a transient loss of vision. The momentary obscuration of vision took place frequently. For six months there has been a difficulty in swallowing; the food tending and at times actually regurgitating through the nose. Certain words are difficult of enunciation. His barber noted four months ago that the left side of patient's face was flattened. The patient denies that he was ever dizzy. The report of Dr. Newmark's examination on June 7-8 is as follows: Plantar flexion R. & L. normal. Knee jerks lively R. and L. Patella and ankle clonus can be elicited R. and L. Abdominal and cremasteric reflexes normal R. and L. No disturbance of sensation whatever in lower extremities; no adiakokinesis; sense of motion and position in the toes delicate. Finger to nose test, at first a little uncertainty R. and L.; later the uncertainty disappears; no astereognosis; motor power is unimpaired and equal R. and L. No adiakokinesis in upper extremities. Writes well with the right hand. When he smiles he draws the right corner of the mouth more than the left. When he elevates the eyebrows sometimes the furrows appear only on the right, at other times R. and L. Sensation of the face to cotton wool diminished over left as compared to right and this particularly so over the forehead and orbital region. Right corneal reflex is diminished; the left is abolished. The left nostril is not so ticklish as the right. To pin pricks the left forehead is not as sensitive as the right. With tongue protruded, syrup is more keenly appreciated on the right than on the left anterior half of the tongue. Further back he says that taste is the same on right and left. The left side of the face is visibly and palpably flatter than the right. When he closes his teeth the left masseter does not contract in so large a mass as the right. The uvula, back of tongue and pharynx may be touched ad. lib. without provoking a reflex. Marked lateral nystagmus particularly to the right. No Romberg. When he arises from a chair he keeps his feet wide apart. He walks with a cerebellar gait, staggering sometimes but not always, to the right. He throws his feet wide apart when walking. Double papillitis. Marked dysarthria though he talks fast and much. Deglutition complained of, with regurgitation of food. Headache insignificant—when present is over

the fronto-parietal region on the left side. There is no tenderness over the occiput. Hearing impaired right and left, much more on left, however, than on right.

The aurist's report is as follows: Both ears affected, apparently a middle ear catarrh; left much worse than right and indications of involvement secondarily of internal ear.

More enlightenment being asked he reports: June

12  
4th: Right ear watch — Rinne. Webster test referred to right ear. 36

Left ear watch 0. Hears loud voices

On June 16, 1909, the patient was operated on by Dr. Sherman. Palpation and inspection in so far as the area admitted, revealed no tumor. Zichen and others have had similar experiences.

The examination of August 25, 1909, will give a fair picture of the patient subsequent to the operation.

Still some vomiting, a condition extant in a greater or lesser degree since the operation; is still somnolent; still involuntary urination; answers questions slowly but is intelligent; articulation thick and slow; still quite deaf. Cotton wool felt better on the right side than on the left; slight facial paresis left side



Harry M. (Case I)—Showing tumor in left cerebello pontile angle. Left cerebellar hemisphere had prolapsed through the opening in the skull.

on all three branches; left side of face flat and masseter seems less in volume on the left than right. Touch and pain same on both fore arms; elbow reflexes very faint; radial reflexes not certain. The patient cannot sit up unassisted. He moves his legs easily, puts either heel on opposite knee, no very evident uncertainty. The knee jerks are easily obtained right and left but are rather sluggish. Ankle clonus right and left and it is gotten by tapping tendon rather than by dorsi flexion of the foot. Sensation the same in both legs. Cannot tell easily when the toes are moved. Swallows with difficulty. Grip fair right and left, perhaps stronger right.

November 1, 1909. Exitus—Autopsy showed a tumor to the left of the pons and medulla compressing the left lobe of the cerebellum. Dr. Lee of the University of California, diagnosed the tumor as a fibro sarcoma.

Case II. On October 14, 1909, Prof. J. H. B., 42 years old, presented himself to Dr. Newmark with a letter from Drs. Barkan and Sewall, and the following record. He consulted Drs. Barkan and Sewall



upon the advice of Prof. Ray L. Wilbur for the first time on March 20, 1909. A year before he noted that when he turned quickly he became dizzy and in the preceding July had a transient diplopia. This did not recur for several months, but in the interim he had a certain difficulty in following objects. Seven years ago he began to hear buzzing sounds in his right ear and this, with an impairment of hearing, has since persisted. He complains of a feeling of fullness in the head and a pain at the base of the skull. In March the fundi were found normal. The ear examination: Right—bone conduction grandenigros 5 seconds>air conduction; watch negative, medium low whisper contact. Left ear—Bone conduction. Grandenigro 15 seconds<air conduction; watch 30-36; low whisper 8-8. He was told to return, but did not until August when he again presented himself. Has had frequent diplopia and the right eye had frequently shown a tendency to inflame.

Examination. A slight nystagmus, particularly when eyes turned to the extreme right. The pupils react promptly to light and accommodation. Ophthalmoscope shows choked disk on both sides. Some retinal inflammation. Disks much swollen (4 D.: R. & L.). He called again in October when he was referred to Dr. Newmark. In addition to the deafness, diplopia and impaired vision, the patient says that he has had a peculiar numbness of the right side of his tongue and cheek for three years and that there is sometimes a biting sensation in this area. As early as a year ago last summer he had a tingling sensation at the right angle of the mouth. He has some difficulty with his teeth along that side of the mouth at this time. He has had no difficulty in swallowing. Has no headaches but a sense of fullness in the head.

All reflexes of arms and legs active and equal; the abdominal reflexes are not obtained; sensation over trunk and extremities unimpaired. Diminished tactile sensation over right side of face and forehead; pain and temperature not so well appreciated in this area as well as on the left side. Corneal reflex less on right side than left. Tickling the right nostril felt much less than on left. The right side of the mouth and soft palate much less sensitive than the left. Sense of smell seems unimpaired. Nystagmoid jerking to right and left; weakness of the right external rectus; the nystagmus is more to the right than to the left. Rotatory nystagmus when the patient looks upward, the rotation being to the right. The patient's vision was fast failing, and with the hope of saving it, a decompression operation over the right parietal and temporal region was performed by Dr. Stillman. On the following day the patient was totally blind. No further operative procedure was suggested. Autopsy disclosed a tumor in the right cerebello-pontile angle.

Case III. Kitty D., 24 years of age, was sent to us by Dr. C. C. Mohun in February, 1910. Finally history: Negative; no recollection of previous illness.

Present Illness: About a year ago "without pain or ache" the hearing in the left ear diminished and the patient now thinks it entirely gone. She was treated by an ear specialist. About 6 or 8 months ago had slight headache, but none "in the longest time." Vomited once about 4 or 5 months ago, but thinks it due to biliousness. About ten months ago during the time when her ear was being treated there occurred a transient blindness, lasting but a few seconds. Two months ago she consulted Dr. James Franklin Smith who told her that her eyes were seriously diseased. She noted trouble with her sight as early as 8 months ago, and that the sight in her left eye was particularly poor. For some months—she cannot say how many—her head has bothered her—she can't say what she means by bothered—except that the head did not feel right. About six months ago if she looked to the left or to the right she had a pain in her head, where—she cannot say. She positively states that she has no headaches. There is no difficulty in swallowing.

Eyes react to light and accommodation. Pupils equal; no nystagmus; double papillitis going on to

atrophy in both eyes; more marked left. Gross test shows fields much limited especially on the left. Does not feel cotton over left cornea as well as on right. Nostril not as ticklish left as right. The objective reaction corresponds to the subjective sensation. Heat, cold, pin and cotton are felt equally and plainly on two sides of face. At times it seems that she feels cotton better on right than on left. Noted salt solution better on the right anterior half of tongue than on the left corresponding side. Power in upper and lower extremities equal on both sides and good, reflexes all present and lively. No changes in sensibility in the upper and lower extremities. When walking no ataxia; faint Romberg; when she brings the left index finger to the nose there is a slight jerkiness. Masseters strong and equal, tongue is protruded in straight line—watch ticks cannot be heard on left side.

On July 28 still no headaches; yesterday when arising from the recumbent position became dizzy and fell to ground.

March 17th—Hydrar and iodide have been tried with no result. Left disk more atrophic; pupils still equal and react to light and accommodation; movements upward and downward and the left and right O. K. Slight rotary nystagmus; corneal reflexes slightly livelier on the right than on the left. Pin pricks consistently said to be sharper on the right forehead and infraorbital region than on the left; over the chin they are the same on the two sides. For cold and warmth the difference between the two sides is the same as declared for the pin. Masseters equal on the two sides—no motor facial involvement. The gag reflex is diminished. Tongue O. K. Smell O. K. No difference noted upon pressure of the two sides of the occiput. Nose to finger test, a slight backwardness of the left hand as the finger approaches the nose. Dr. Walter Scott Franklin noted a decided difference in sensation between the right and left inner side of the nose, the left being decidedly less sensitive. The labyrinthine tests on the left side—water, chair, electricity negative. Dr. Franklin is certain that the deafness is of intracranial origin. The patient cannot see to read with the left eye. She reads with the right. There is slight staggering, but to no particular side as the patient walks. Pulse 88.

Dr. Sherman will delineate the steps of his operation, and his removal of a cyst from the left cerebello-pontile angle. It was easily grasped with forceps and dropped into my hands. In size it was similar to a pigeon's egg, its contents were clear; microscopic examination of the wall showed it to be thickened pia arachnoid. Borchardt has described a similar case.

Case IV. Frank C., 45 years of age, entered St. Luke's Hospital under the care of Dr. Chas. Clinton on June 29th, 1910.

As a child he had epilepsy and this has persisted up to the present. Twenty-six years ago he acquired a chancre without secondaries for which he was treated for 12 months.

About 4 months previous to his admission to the hospital he began to have sharp shooting pains in the head mainly on the right side. They were persistent, but not always equally severe. At about the same time the hearing in his right ear lessened and now he is quite deaf. A difficulty in vision was a further incident at about the same time. He saw double. He could, however, read easily with either eye alone. Likewise he dates a certain staggering in his gait and a marked dizziness to four months ago. During the past few months he has not noted the passing of the razor over the right side of the face as the barber shaved him. Saliva runs from the right side of the mouth.

On July 28th the findings of Dr. Leo Newmark were as follows:

N I. O. K. if any difference better right than left. N II. Can read the smallest print in the Chronicle with each eye separately, with the aid of his glasses. Fields to the finger test O. K. Discs looked rather gray, caps very indistinct. Papillitis not visible.

N III. N IV. Unaffected.

N VI. Abduccus paralysis on right. Nystagmus well marked in all directions. Subconjunctival hemorrhages on right.

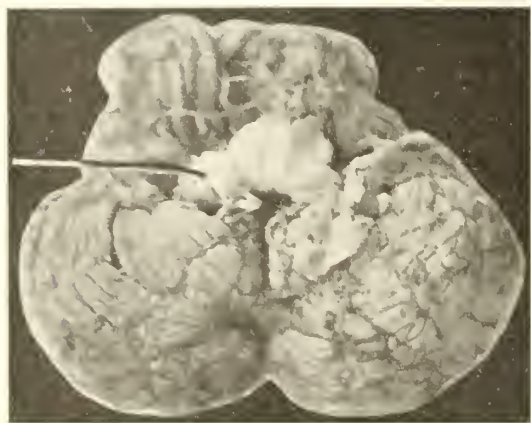
N VII. Paresis well marked in all three branches on right.

N V. Well marked anesthesia to different stimuli in all three branches on the right; was not certain of involvement of the motor V because he would not contract the masseters properly. Jaw deviates when the mouth is opened slowly, but not to right.

N VIII. Deaf right; hears left.

N XIX. Posterior portion of tongue seems to have its sensation. Palate does not rise energetically on intonation, but there is no difference between the two sides.

N X. XI. XII. O. K.



Frank C. (Case IV)—Showing tumor in right cerebello pontile angle. The line indicates the position of the tumor.

Speech is thick and indistinct; not due solely to facial paralysis, but distinctly to abulbar character. He says that he can swallow O. K. and without regurgitation, but on account of not feeling food on the right side it collects there.

Cerebellar staggering: Resident physician says that it is always to the left. Reflexes of upper and lower extremities equal on the two sides and exaggerated. No jaw jerks. No anesthesia of any kind in the extremities, no astereognosis. Sense of posture of fingers of each hand O. K. In finger to nose test a little uncertainty right, none left; and right hand improves rapidly with practice.

Aug. 8-9. Is considered by the doctors and nurses to be getting worse. A month ago could walk about, now cannot keep his balance. When he entered the hospital the facial paralysis was debatable, now is well marked in all three branches. When he opens his mouth at first it deviates far to the paralyzed side, then suddenly comes back to the middle line or beyond it. No astereognosis. Motor power in extremities not disturbed. Sense of posture in fingers O. K. In finger to nose test passes the tip of the nose almost regularly at first, but improves on repetition; this is more marked right than left. Eye grounds seem normal; disk rather gray. No ankle clonus; no Babinski; no Oppenheim.

On Aug. 10, 1910, I noted that the faradic and galvanic irritability of the nerve and muscles of the right side of the face was much reduced; no qualitative alteration. The breathing during my visit was at times Cheyne-Stokes in character.

Aug. 11, 1910. The patient died on the operating table before the dura was opened. A tumor was found in the right cerebello-pontile angle. It was partly cystic, partly solid in character and deeply grooved and compressed the right half of the pons. It was firmly adherent to the dura mater from which

it probably sprang. Microscopic examination found the tumor to be sarcomatous in character.

So much for the clinical report of these four cases. Dr. Sherman will illuminate the surgical aspect of three of them, and to him I yield, but not before I offer to him and to Dr. Newmark my thanks for their graciousness in choosing me as the reporter of these splendid cases.

### THE OPERATION TO EXPOSE THE CEREBELLO-PONTILE ANGLE.

By HARRY M. SHERMAN, M. D., San Francisco.

There are, of course, no special local principles in opening the posterior fossa of the skull. But there are, of course, certain local conditions to be taken into account and certain local objects to be attained. I wish to point these out in the course of relating the details of the operations I have done.

The position of the patient is of moment chiefly, I am sure, for ease of access by the surgeon. In my operations I put the patient on his side and kept him in that position by a rack which held his chest and prevented his rolling over, but did not interfere with his breathing. The head then rested upon a sand pillow and so was in a position to be approached at the back, but better upon the upper than the lower side. The table was then inclined so that the head was much higher than the feet to lessen the tendency to hemorrhage which often exists in cases of brain tumor with high blood pressure, and also to save cerebro spinal fluid which can run out less easily in the head up position.

I am quite sure now that the head up position is unnecessary. It seems obvious that the effect of posture will be as great inside the skull as outside it, and that the general blood pressure might even have to be increased in order to deliver to the inside of the skull sufficient blood against the force of gravity. This, of course, would not tend to lessen hemorrhage.

The loss of cerebro spinal fluid has been, as I have seen it, a matter of no moment. I have sometimes nicked the dura mater in the course of an operation upon the Gasserian ganglion and much fluid has run out, so that its presence in the wound was a great disadvantage, but its loss by the patient was of absolutely no moment. I have exposed the spinal cord just below the axis, and have lost all the cerebro spinal fluid that would run out of an extensive wound in the spinal dura mater with no injury to the patient. In one of these posterior fossa operations the cerebro spinal fluid could be seen rising and falling in the foramen magnum as the patient breathed, while in the skull and in the cerebral ventricles was only such as had not run out, and it was, of course, under no pressure, and yet the loss of the normal extravascular pressure, maintained by the presence of the fluid, wrought no harm to the patient. Undoubtedly the prone position with the shoulders so supported that the respiratory movements of the chest are free and the head held with the neck flexed, so that the whole of the occipital bone is accessible, is the preferable position.

The incision called by Harvey Cushing the "cross bow" incision is the best planned. Cutting only the skin on the first level, along a curved line above the superior curved line of the occipital bone, and the aponeurosis and muscle on a little lower level, so that the flaps can be wholly turned back from practically the entire occipital bone, and yet the incision shall be in tissues which unite firmly and with a scar which does not stretch, is a distinct improvement on the earlier plans of cutting directly to the bone from the surface. Again the split of the flap in the middle, changing the simple curvilinear incision into a "cross bow" and permitting, as Cushing points out, the lateral reflexion of the two flaps, is an advantage in that it gains room.

The bone exposed is different from that of the rest of the skull in that it has no diploe and is often very thin. Therefore it must be trephined very carefully—in fact I think it had better be opened by



a burr, or Doyen's perforator, and the fact of the thinness constantly kept in mind. The small opening once accomplished it can easily be enlarged to any needed extent by rongeurs. Cushing says "upward, so as to expose the lateral sinus in each side; across the median line, leaving intact the bone over the torcular; and then downward so as to include the posterior half of the foramen magnum."

As the bone is the most important connective tissue in the path of the opening, and as the size of the opening in the bone controls, more than anything else, the work which may be done inside the skull, it will be well to quote, at this point, the different opinions regarding the opening of one side as against the opening of both sides simultaneously. Really these opinions are not many. Those books which offer themselves as exponents of operative technic say but little regarding this particular operation or generalize very vaguely. Bryant does not consider the opening of both sides at all and Bickham is in the same category—Jacobson follows Frazier in his teachings, and Kocher, while giving the preference to an opening of one side only if the diagnosis implicates only one side, agrees that, if it be known to be necessary, both sides may be opened, and quotes Cotterill that the brain will not be injured by so doing. To expose the bone Kocher uses the large semicircular flap, base down on the neck, and perforates the bone with a trephine, its opening then being enlarged by rongeurs.

Frazier in 1906 wrote in favor of the opening of one side alone by an incision along or above the superior curved line from the mastoid to the middle line and then one downward in the middle line of the nucha. For cases in which the tumors cannot be localized, or when, "for any other reason a radical operation is not deemed feasible a less mutilating incision will answer the purpose quite as well. A vertical incision should be made, beginning a little above the superior curved line and extending downward for a distance of three or four inches." Frazier likens this incision to a muscle splitting incision in the temporal fossa, and points out the resemblance of one locality to the other, each having thin bone under considerable muscular tissue. If for any reason, both sides need to be opened Frazier advises a second lateral muscle splitting incision to open the second fossa and points out certain advantages the plan has over the conventional incision. He does not say, however, that he has used the method, and I can agree to its probable value only if one side alone is to be opened in search of a tumor of the cerebellum which is located superficially and posteriorly. For an adequate exposure of the anterior part of the posterior fossa, the favorite site of tumors, a much larger opening than is possible through a muscle splitting vertical incision seems to me to be absolutely necessary.

Cushing in a letter to me answers the question very definitely and I quote what he says in describing his own practice. "I can easily answer your question. I do make it an invariable rule to remove the entire occipital bone below the muscular attachment, from mastoid to mastoid and including the posterior half of the foramen magnum. Without doing this and freely opening the dura across the median line any extensive manipulations are carried out only with great risk and with a certainty of needlessly damaging the cerebellum. Most cerebellar procedures are carried out if possible by a one-stage performance. The wound is such an enormous one and requires such careful suturing in several layers that a second stage is necessarily attended with more risk than is the case with operations over the cerebral hemisphere."

Getting out of the skull and closing the holes is quite as important as getting in and having enough room. In this location all the coverings of the brain cannot be replaced for the osteoplastic method has been impossible in the bone. Therefore it is important to close the dura mater through the whole of the extent of the incision in it. I must be considered as emphasizing this point as my second case

will demonstrate. Over the dura mater are sutured the muscular and aponeurotic layer and then, higher up on the skull, the skin.

A typical decompression operation should leave the dura unsutured, or should excise a piece of dura mater, so that the brain may extrude beneath the muscular layer, and yet be held in and covered by that layer. Frazier points out that to gain room in the skull and even room that may be ample for decompression purposes, it may not be necessary to incise the dura, and in this locality I think it will be plain, that, if the dura is incised it must be sutured.

Here as elsewhere the question of one or two stage operations has come up and I am bound to admit that the question has here some application. At the same time I must insist that there is and always will be an argument against a two stage operation when the work can be completed in one stage—that is, an operation should always be begun with the intention of its being completed under one anesthesia unless, during the doing of it, circumstances arise which make it necessary to stop. This alone will excuse a second stage under a second anesthesia. Cushing's opinion and practice have already been quoted.

Case one. Doctor Lennon has reported the neurologic side and all that I have to do is to detail the surgical work. I operated with the patient on the side and in the head up position. I opened only the left cerebellar fossa. When the dura mater was opened the cerebellar hemisphere protruded and much cerebro-spinal fluid ran out. It then seemed as if it would be impossible to push the cerebellar mass aside so as to see into the angle in front of it. However, after a little effort the cerebellum seemed to shrink, as if a cyst in its interior had emptied, and as it shrank it could be compressed and the space in front seen and palpated. No tumor could



Fig. 1 (Case I)—Shows decompression tumor after unilateral opening of the posterior fossa of the skull. Dura mater not sutured.

be found. The dura mater was left unsutured. The muscular and cutaneous flap was sutured in place over the cerebellum. The patient made an uneventful recovery from the operation and a hernia of the cerebellum soon appeared under the muscles (Fig. 1). This went on to a large size and remained so until the patient's death. Now, inasmuch as I found no tumor at the time of the operation, and yet a large one was found at the necropsy in the very place predicted by Dr. Newmark, I have always regretted that I did not open the fossa a second time. The fact of the large decompression tumor should have been taken as evidence that a tumor or other pathologic condition was present and might be amenable to surgery. At any rate, opening and looking in to see would not have done the man any real harm.

Case two. In this patient, who was also operated upon in the head up position, I began with the inten-

tion of uncovering both fossae, and so made the Cushing crossbow incision without, however, terracing it. In using the trephine over the left hemisphere I miscalculated the resistance and the thickness of the bone and the instrument slipped in and cut a curved gash in the dura 1.5 to 2. cm. long. An endeavor to suture this proved futile, for the material would not hold stitches. Therefore, although there was an inclination on the part of the cerebellum to extrude, I went on and removed all the bone as described by Cushing. When this had been completed the patient went into collapse and I had to stop. The skin and muscle flap was sutured over the dura mater, still leaving—because I could not close it—the dural wound unsutured in the hope that the support of the flap and adhesive processes would seal it. Four days later the patient was again anesthetized and the wound reopened. The adhesive processes I had hoped for had not occurred and broken up cerebellar tissue had pushed out of the dural slit and was between the dura and the muscle. At this time the dura was opened freely on both sides, the left cerebellar remnant was pushed to the right and the angle between the cerebellum and pons was exposed. A cyst of the pia mater was found lying on the floor of the fossa and close against the posterior surface of the temporal bone. This was removed leaving the space clear. By this time the patient was again in collapse and I had to close the wound as rapidly as possible, and so, believing that as the tumor had been removed there would be no excessive hernia I left the dura unsutured. This was an error. A large hernia, or decompression tumor has developed which is a great blemish if it is nothing else. However, in the light of the experience with my first case I am going to reopen this patient's cerebellar fossae and see what is there, and perhaps attempt to suture the dura even at this late date or make a firmer closure of the

should be watched, with the sphygmomanometer during the whole operation. I saw the apparatus in the room and that it was in an interne's hands. I did not watch it put on and in commission, and it never was put on. I acknowledge I should have known of this disobedience earlier than I did; as it was I was not aware of the imminence of danger until it was upon us and the man stopped breathing. Again, Cheyne-Stokes respirations had been observed before the operation, but not recorded. I myself had not seen them. The omission to record them made the observation of them of no value to the patient. Probably the omission may have been of no moment in its effect, but looking back over the case I think it is plain that, with a proper system of artificial respiration here, such as the Meltzer and Auer, we should have been able to have operated



Fig. 3—Back view of Case II.



Fig. 2 (Case II)—Shows decompression tumor after bilateral opening of the posterior fossa of the skull. Dura mater not sutured. Side view.

skin and muscle coverings. I call attention to the photographs (Figs. 2 and 3) which show that the tumor is larger on the right side, where there is an entire cerebellar hemisphere. Tests show that this hemisphere is functioning properly while the left is not, but the right hemisphere is not substituting for the left as I hoped it might do. I based this hope on the statements of Frazier who reports having "deliberately removed from one-quarter to one-third of the cerebellar hemisphere" and he attributed to this extreme measure a decompression effect, and spoke in another place, of the slight effect this had on the total cerebellar function. Consequently I have the strong opinion that there is still a pathologic condition other than the lack of dura mater, which may be discovered and relieved.

Case three. I am going to speak of this case only to criticize my own relation to it, and that of one of my assistants. I appreciated the serious condition of the man and had ordered that the blood pressure

upon this man easily in spite of the tumor's pressure upon his medulla. I know that I shall always feel that I should have thought or known of the specific danger and have planned the way of averting it. In this patient's case I again nicked the dura mater in spite of great care to avoid it. This was due to the greatly varying thickness of the skull and the trephine circle covering both a thick and a thin place at the same time. The operation, changed into an autopsy, demonstrated phenomenal thickness of much of the occipital bones. It is because of this special possibility in this particular bone that I think a trephine should never be used on it, but that the bone should be opened by perforator or burr.

**Discussion.** H. E. Castle: We have a very vivid lesson brought before us to-night by these two papers being read together. It shows us the necessity of correlation and departmental association in medicine. We have here cases that were sent to the surgeon that were produced unnecessarily and were in all probability avoidable. These cases came to Dr. Sherman not as primary tumors but as secondary diseases produced by the pressure of tumors and the lowering of the vitality of the patient. One case was reported that had been standing 7 years, and another 4 years from the time the initial ear symptoms appeared. It is entirely unreasonable to send a case to a man expecting to get good results from operative procedure after it has stood from 5 to 7 years. In the first specimen show here the medulla, pons and the basal ganglion were all so pushed out of shape that the patient must have been in a deplorable condition. The operation to remove a small tumor of the cerebellar pontile angle is not a grave or difficult procedure; it requires a little extra technique, a little extra judgment on the part of the surgeon, and a little more careful handling of tissues than operations elsewhere. The cerebellar pontile angle can be reached in a way that is practically safe. We have a great lesson to learn in not sending these patients to the surgeon after they are incurable. Do not send them,—he can do nothing with them. My attention was called to the departmental asso-



ciation in diseases of the abdomen when attending the Academy of Medicine in New York where I heard J. B. Murphy, Jacobi and Wyeth read papers, wherein they showed how the great diagnostic ability of Jacobi, when associated with Murphy's dexterity and technic, worked out to the saving of patients' lives. There were no cases that Prof. Sherman reported to-night that should have gone to him. It is an injustice to the surgeon to send him such cases and the otologists, neurologists and other men who take it into their hands to treat these cases for 3 to 5 years ought to sign the death certificates—the surgeon has no right to be called on to perform that function. How often now do we get a case of blown up appendix with general peritonitis? Seldom. Why? Because now the internists send their cases to the surgeon at the proper time. How many men operate on the typical disease that Basedow, Graves and Perry described years ago? Not very many. Hyperthyroidism is now a disease that we operate. They get well. We do not get the chance to operate on cases with bulging eyes, diarrhoea, great emaciation, rapid heart and other symptoms that go with Basedow's disease. Prof. Sherman has shown us this evening that these can be operated and that they will not necessarily die from operation. He had trouble with bulging of one of the cerebellar lobes but this practically always happens on account of the intracranial pressure in these late cases. Every death I have witnessed during operation has occurred just as the tumor was being removed, the patient succumbing to respiratory and cardiac failure due to shock. Obviously this disaster will occur most often in the removal of large tumors, it perhaps being due to an extreme sudden change in intra-cranial tension. We are of the firm belief that the advance of surgery of the brain depends in a great measure on early operations which will permit us to deal with the primary lesion.

Cullen F. Welty: Dr. Lennon has called your particular attention to the findings that were present in all cases, viz.: deafness, vertigo, nystagmus, and with such symptoms associated a diagnosis is almost absolutely certain with but few exceptions. The two great forms of deafness are otosclerosis and labyrinthian deafness, (the latter commonly spoken of as nerve deafness), are very easily diagnosed by the tuning fork. In each the ears are similarly affected, by that I mean the tuning fork will show little or no change in the ears of the same individual. However, the deafness of a cerebellar tumor will always be associated with a labyrinthian deafness, besides, the tuning fork will show a much lessened bone condition on the side of the new growth. This is practically the only condition that will give you such a picture with the exception of fracture of the base through the petrous portion of the temporal bone, or the remains of a Manier's disease, either one of which would be easily elicited by a careful history. Every case had vertigo. I will not say all, but most cases of vertigo are associated with nystagmus of one form or another. In the cases reported it was horizontal, vertical. In some instances it was to the side of the tumor, in others to the opposite side. I will attempt to make clear why this is so. With the caloric reaction of the semi-circular canal, there would be a nystagmus to the opposite side. However, the communicating links must be perfect or the impulse will fail to produce the characteristic reaction. If the canals are destroyed, or the communication destroyed by pressure of a new growth, there naturally can be no reaction, this comes when the way is completely blocked. At the same time there is nystagmus to the opposite side, this is due to the overbalance of the destroyed canals on the opposite side. So the new growth should be located on the side on which the ear ceases to react, the patient will also be very deaf on this side, and again when the nystagmus is most marked toward the same side, is when the growth acts as an irritant in Deiter's area, not shutting off impulses, but inducing them, the nystagmus will be to the same side, there will not be so much deafness. The determination of the de-

gree of deafness or absolute deafness is very important, it has been demonstrated beyond doubt that it requires special appliances to speak with certainty in individual cases. In the diagnosis of cerebellar abscess, following destruction of the canals, there was first a nystagmus to the opposite side, which subsided and disappeared entirely in the course of a week or ten days. Were you now to inject cold water into this affected ear there would be no reflex reaction. If any time following this destruction of the labyrinth (from disease or operation), nystagmus appears on the same side as the affected ear and increases in degree from day to day, an absolute diagnosis of cerebellar abscess can be made. The nystagmus in this instance is due to pressure in Deiter's area on the same side, the same holds in a growth when the impulse to the ear is cut off. Differential diagnosis between canal affection and cerebellar tumors are made by the revolving chair. Those with affections of the canals will always fall in a certain way, that is, with regard to the position of the head and the canal affected, while with cerebellar affections they do not follow any rule.

We are indebted to Barrany of the Poliyzer Ear Clinic for the perfection of these different tests, besides many more that become much more complicated.

I think Dr. Lennon is to be congratulated in picking out the three important symptoms that are almost proof positive of cerebellar new growths.

Wm. Ford Blake: I wish to say a word to emphasize on the responsibility that rests upon the eye man who may first see these cases because unquestionably, as a rule, the early signs are seen in the eye. Experience has taught that tumor of the nerve head is not necessarily an early symptom, in fact it is very frequently a late symptom, but Cushing and Bodley, Gunn and Patton and Horsley pointed out the diagnostic assistance and value gotten from a perimetric examination of the field. In practically all of these cases there is a contraction of the form field for white; there may be an alteration in the size of the field for blue, which is normally greater than the field for red. In addition to these changes there may be a bitemporal loss of color for red or blue,—most frequently for blue. The men who are doing brain surgery have come to rely upon the change in the form field as an early and positive sign for surgical intervention. Marius Gunn classified the picture in the fundus into four stages and advocated surgical intervention in accordance with the stage of the papilloedema.

1st—Contraction of form fields and change in color fields with overfilling of the retinal veins.

2nd—Exaggeration of the first stage with possibly a slight prominence of the disc head.

3rd—Continuation of all these with possibly a little hemorrhage.

4th—Marked increase of the preceding signs with a good deal of retinal hemorrhage.

He advocates that operative interference may be undertaken in the first and second stages, particularly in the first, with absolute assurance of maintaining patient's vision. In the third stage that the vision may possibly be improved. In the fourth stage the consequent edema that ensues, following intracranial operations, simply increases the tension already in the nerve-head, and blindness, if not already present, is practically sure to ensue.

Harrington B. Graham: There has of late been some very interesting work done by Docent Barany touching on the differential diagnosis in vestibular and cerebellar affections which has not been mentioned this evening. At the International Congress at Budapest he read a paper on the Romberg symptom in which he brought out the facts that if a patient be placed in the position for the Romberg test after he has been turned in a turning chair to produce a nystagmus, say to the right, he will fall to the left; if now his head be turned to the left without turning the body he will fall backwards, if

his head is turned to the right he will fall forward. If there is any interference with the vestibulo-cerebello spinal tracts as, for instance, cerebellar tumor or abscess, hemorrhages, tubercle, gumma of the cerebellum or pons, etc., this normal relationship of the nystagmus, position of the head and body and direction of falling is lost. Again if a patient without any cerebello-pontile trouble is turned on a turning chair, say to the right, so as to produce a nystagmus to the left and is requested to point with hand or foot, with his eyes closed, at an object held in front of him, he will point to the right of the object; if the nystagmus produced is to the right he will point to the left of the object, if it is a vertical nystagmus he will point above or below the object according as the nystagmus is downward or upward. This pointing to the side of the object according to the position of the head and the direction of nystagmus does not occur if the vestibulo-cerebellar tracts have been interfered with, the patient pointing directly at the object or always making an error in the same direction regardless of head position. In case the interference is on one side the hand or foot of the side affected will point accurately while those of the other side will point to the side of the object. If the patient attempts to point at his own nose after the turning he has no difficulty at any time unless the cerebro-cerebellar tracts have been involved.

Thomas G. Inman: I should like to call attention to certain factors connected with the handling of these cases which are worthy of more consideration than has been accorded them. There still remains the tendency to follow the teachings of a few years ago and subject these tumor cases to a preliminary treatment with mercury and iodide of potassium. In the presence of a negative Wassermann I believe this should not be done. The results are sometimes misleading, as in many non-syphilitic brain tumors temporary amelioration of the symptoms may follow; the growth of the tumor continuing meanwhile. Too, there is the temptation to wait until a focal diagnosis can be made. In the presence of increasing symptoms this may be inimical to the best interests of the patient. Before any symptoms may become prominent, decompressive operation should be performed. These patients are the subjects of increased intracranial pressure. The extent of this pressure is difficult to ascertain; the point at which intolerance may be reached is impossible to foretell. The slightest change may be sufficient to invite a fatal issue. Therefore, before being subjected to any operative procedure these patients should be depleted, preferably by hydrogogue catharsis, and, perhaps, an hour or two before operation, a few leeches to the temple might be instrumental in warding off a bad result. The position of the patient at the time of operation is of the utmost importance. Horsley in 1906 made this statement: "This question of position of the head is no mere matter of convenience to the operator; it is an extremely serious one to the patient for the satisfactory performance of the operation, and is only to be secured by having a suitable head rest such as the fork rest of Prof. Frazier or the one I use." The operating table used by Prof. Frazier, which can be tilted to any angle, is of undoubted value, but whatever other kind is used before proceeding to open the subtentorial space, the forehead should be placed against a fixed arm or rest in order to prevent undue flexion of the head upon the chest. That such a precaution is necessary is made evident by a consideration of the following facts: In the subject of brain tumor the intracranial pressure may be so great that any sudden increase in that pressure may cause death. If, then, the attempt is made to open the subtentorial space without this head rest, which acts as a counter pressure against the forehead, the head, under the pressure of the trephine or other opening instrument, flexes upon the chest, pressure is made upon the great veins of the neck and, the outflow

of blood from the brain being thus hindered, the intracranial pressure is suddenly increased and the patient may die upon the table. Furthermore, the patient should be prepared, before beginning the operation, for a lumbar puncture for two reasons—first, sudden edema of the brain after the dura is opened may necessitate the procedure in order to prevent serious injury to the brain substance; and, second, sudden cessation of respiration due to compression of the medulla might be relieved by forcible injection of salt solution into the spinal subdural space. But do not forget in this emergency to lower the head of the table, and have an assistant practice artificial respiration while the operator quickly opens the head.

Sol Hyman: From a perusal of the literature one is forced to the conclusion that the surgery of the cerebello-pontile angle is far from a closed subject. Clear as the indications are, a technic which is safe and applicable by the general surgeon has not yet been developed. Dr. Sherman has detailed some of the methods of entering the skull, and of final closure, but has not devoted much space to the procedures to be followed in exposing and removing the growth. Large numbers of these patients in the hands of very many operators die, either on the table, or a few hours later from collapse which has occurred on the table and is never recovered from, or which has occurred suddenly shortly after the conclusion of the operative interference is completed. From the literature I have gained the impression that the operative shock commonly sets in just after the dura is opened—that is, when the space into which the cerebellum and medulla (and tumor) are crowded is enlarged. This enlargement of the posterior fossa seems to produce the shock. These tumors, lying as they do in the cerebello-pontile angle, compress the aqueduct of Sylvius and so produce a hydrocephalus. It is conceivable that the release of pressure below the tentorium by the opening of the dura mater will not relieve the hydrocephalus, and the cerebral peduncles are thus forced, by the supra-tentorial pressure, downward through the foramen in the tentorium. This sudden dislocation of the brain-stem, particularly if it be such as to affect the bulbar mechanism, is distinctly to be avoided. It is also conceivable that this sudden dislocation of the brain-stem may be diminished by relieving the hydrocephalus by means of a ventricular puncture performed before the dura mater of the posterior fossa is opened. In the hands of Fedor Krause and others this method has proven dangerous, but, I believe, warrants further trial. Cushing in a recent paper in the Interstate Medical Journal, says that if, after opening the dura, the arachnoid cisterna in the cerebello-bulbar angle be quickly punctured, much of the cerebellar dislocation and shock can be avoided. This is a distinct advance in the technic. The most striking fact gleaned from a careful study of the literature of this subject is that the general surgeon who has the opportunity to operate upon patients suffering from brain tumor at infrequent intervals, has a mortality in his cerebello-pontile cases of 100 per cent. Better results are so rare as to be glaring exceptions. On the other hand, men like Krause in Germany, Horsley in London, Cushing and Frazier in America, who devote a large part of their time and attention to this work, show results in striking contrast with the above. But in the hands of even these men a complete functional cure is an exception—so rare, in fact, M. Allen Starr felt warranted in publishing such a cure (operation by Cushing) under a separate title. Krause has reported a few complete functional cures. With respect to the approach in these cases, the men who have given the matter serious thought are divided into two camps: those who dislocate the cerebellum, and those who incise it or excise a portion thereof. If the cerebellum be dislocated, great care must be exercised that the medulla be not subjected to undue pressure, causing permanent



failure of the respiratory apparatus; if the cerebellum be incised or resected and if one be not careful and injure the dentate nucleus, the functional defect will be permanent. Cushing, with his broad exposure and careful handling of the small brain, has proven that such resections or incisions are, in the greater number of cases at least, unnecessary.

(Demonstration of Krause's vacuum tube for grasping brain-tumors to facilitate their removal.)

Harry M. Sherman: I hardly think, Mr. Chairman, that the criticisms of the gentlemen regarding the time which these patients were sent to operation, are justifiable. The first patient, for instance, came to his operation a little too soon; his tumor was subcortical, invisible and not palpable, and it could not be removed. With the second patient, the tumor is out and the patient is alive. The third patient was subjected to no delay and passed from one stage of his illness to the operation very quickly. The patient had had a brief history. Dr. Hyman refers to Starr's and Cushing's case. It has been a great sorrow to Dr. Newmark and myself that we did not have as good a record. Had I not made that hole in the dura mater I think we would have had very nearly as good a record.

In connection with what Dr. Hyman has said, that "most men who report single cases report deaths," I want to make this point: To do the operation upon one of these patients I went, at the patient's wish, to a hospital at which I am not in the habit of operating—that is, to one in which I was not thoroughly at home, and where I did not know the names of the operating-room staff nor just what was their function and ability. No matter how careful and considerate and helpful the operating staff at such a hospital may be, the visitor surgeon is still operating in an unfamiliar environment. He must constantly be watching, consciously or unconsciously, things which he, at his home hospital, is in the habit of having done for him by people to whom he is accustomed, and so he cannot concentrate his attention wholly on the work and his own hands. At the hospital to which I went I received every possible consideration and attention, and yet I have to think that if I had been at home I would not have wounded the dura mater of this patient and so have started a train of events that has lost us the best possible result. People who insist upon going to special hospitals for their own gratification, instead of to other hospitals to which their surgeons are most familiar, should be made to understand that they are possibly sacrificing the best attainable result for the gratification of a preference. For myself, if more of these patients present themselves, I shall claim the right to select, for their sake more than for my own, the place at which I shall do the work.

P. S.—The decompression suboptical tumor in case No. 2 was opened. Much cerebro-spinal fluid ran out and it was found that the mass of the tumor was a cyst, subcutaneous and divided in every direction by septa and fibrous bands. The cerebellar lobes were covered with the same fibrous material and it was impossible to identify the dura mater or any other anatomical tissues. Exploration was pushed fairly well into the left fossa, finding only the conditions as described. The attempt therefore to improve the condition did not succeed.

23 February, 1911.

## CALIFORNIA ACADEMY OF MEDICINE, DEC. 22, 1910.

### Demonstration of a Series of Sections of the Spinal Cord.

By MILTON B. LENNON, M. D., San Francisco.

Dr. Lennon demonstrated a series of sections, some showing the normal anatomy and others illustrating the common lesions of the spinal cord. The specimens were stained either by the Weigert Pal method or with the Haematoxylin Van Gieson stain. They were as follows:

1. An infantile cord.
2. The normal adult cord.
3. Sections from two cases of syringomyelia.
4. Myelitis luetica.
5. Amyotrophic lateral sclerosis.
6. The cord in beri-beri.
7. Tabes dorsalis.
8. Pernicious anemia.
9. Subacute combined degeneration (Collier and Batten), two cases, one annular in the distribution of the degeneration, the other diffuse.
10. Progressive muscular atrophy.
11. Family spastic paralysis (Newmark Type).
12. Epidemic cerebro-spinal meningitis.

The sections were all prepared since the fire in the Neurological Laboratory of the San Francisco Polyclinic.

### Three Cases of Probable Cancer Transplantation from the Use of the Gilman Vaccine.

By W. B. COFFEY, M. D., San Francisco.

In a series of some 30 cases of cancer treated by operation for as complete a removal of the tumor as possible and at the same time by the vaccine method of Gilman, there were three cases that presented an unusual result, inasmuch as tumors developed at the site of the injection. The history of the cases is as follows:

Case 1.—Mrs. B. Previous operation for removal of uterus, right tube and ovary per vaginam, three months ago at Salt Lake City. Recurrent carcinoma involving vaginal wall, base of bladder; tumor mass in left pelvis. Sept. 19th—Laparotomy. Removal of mass involving the left tube, ovary, posterior surface of bladder. Vaccine prepared and tissue referred to Dr. Walter Gibbons for examination. Sept. 20th—Inoculation Gilman method in upper right abdominal region. Three hours following operation severe twitching of muscles of face, followed by unconsciousness and general convulsion. Two similar convulsions the same evening. These epileptiform attacks lasted from 10 to 15 minutes. No previous history of epilepsy. Oct. 14—Gilman injection and tissue removed from another individual, adeno-carcinoma of breast. Reaction slight. Tumefaction at point of injection disappearing at end of week. Oct. 14th—Gilman injection made from previous growth. Reaction slight; tumefaction and pain disappearing in one week. Oct. 25th—Injection from adeno-carcinoma from another individual. Nov. 1st—Similar injection from another individual. These injections were made at various points in the abdominal wall. The first injection, the one that was autogenous, was the only one in which tumefaction remained. In the course of two weeks segregated into nodules. Six weeks following the initial dose the nodules so increased in size that the patient complained of pain on palpation or muscular effort. At the end of the twelfth week the nodules increased to the size of a walnut. Under local anesthesia they were removed. The chain of nodules was situated in the subcutaneous tissue at the point of first injection. Tissue referred to Dr. Gibbons for examination. First vaccination autogenous, kept in carbolic acid 5% for 24 hours on ice and yet followed by tumor at site of injection.

Case 2.—Mrs. C. Immobile, inoperable carcinoma of uterus. Sept. 14th—Removal of section of cervix sufficient for one dose of the vaccine. Inoculation same day. Specimen examined by Dr. Gibbons. Sept. 26th—Similar inoculation from another individual.—growth adeno-carcinoma of breast. Oct. 12th—Autogenous vaccine made from tissue removed from uterus by curettment. Nov. 22nd—Similar procedure. The tumefaction resulting from the primary inoculation of Sept. 14th gradually increased to the size of a walnut and became painful.

The inoculation of Sept. 26th, Oct. 12th and Nov. 22nd tumefactions disappeared after one week. In this case the first, third and fourth were autogenous; the second, from the material of an adeno-carcinoma breast case of another individual. The tumefaction of the second, third and fourth disappeared in the period of one week. The initial dose, which was autogenous, gradually developed a tumor mass, which was removed at the end of eight weeks. Referred to Dr. Gibbons for examination.

Case 3.—Mr. R. Previous operation one year ago—epithelioma of right side of tongue. Second operation six months later—secondary involvement of glands of neck. Rapid recurrence with subsequent necrosis of soft tissues of neck. Sept. 13th—When he came under my care the posterior deep cervical glands were removed, receiving an autogenous vaccine the same day. Sept. 25th—Second autogenous vaccine. Tumefactions from these autogenous vaccines disappeared at the end of a week. For want of further material he was not injected again until Oct. 14th, when he received an injection of vaccine from a breast (adeno-carcinoma). Oct. 24th—Further dissection of glandular involvement sufficient for an injection was removed from his neck and injected in the lower part of the left abdomen. Nov. 7th—Injection from a breast adeno-carcinoma. In this case the first two injections were autogenous, the tumefactions entirely disappeared; the injections of Oct. 14th and Dec. 7th disappeared, but in the one of Oct. 24th (autogenous) the tumefaction gradually increased in size. My assistant, under local anesthesia, removed a section of same for Dr. Gibbons. Since removing this section for examination the remaining tumefaction is rapidly increasing in size. The first, second and fourth were autogenous. The third and fifth from a breast adeno-carcinoma. The fourth vaccination developed the tumor. In every case the tumor was ground to the point supposed to destroy as many of the cells as possible and kept for at least three hours in a 5% carbolic acid solution. In Case 1 the material was kept nearly 24 hours.

All pathologic examinations were made by Dr. Walter Gibbons and the Noguchi and Wassermann reactions were done by Dr. Grace Linforth. It will be seen that in each instance it was a tumor precisely like the original growth that developed at the site of inoculation which was in each case the abdominal wall. Each patient received other injections, but in these three the tumor developed after the use of an autogenous vaccine, and in no case where the vaccine came from the tumor of another patient was there any sign of tumor development. This follows the rule that cancer cells are more dangerous to the host than to any one else.

It is hardly fair to use this fact in any way but as a warning. It has been generally supposed that transplantation was exceedingly difficult except in the immediate neighborhood of the tumor as shown by operative recurrences where the original tumor has been cut through. There is no recorded case of a surgeon or pathologist developing cancer from injury to the hands while handling cancer tissue, and in animal experiments keeping an easily transplantable tumor at room temperature for a few hours is sufficient to prevent the transplant from developing. All of these injections were made from material prepared as nearly as possible after the method advised by Dr. Gilman and contained 5% carbolic acid. Two of the cases received respectively two and four injections from cancer tissue from other and not similar tumors and there were no developments at the site of these injections.

**Discussion.**—H. A. L. Ryfkogel: For many years surgeons have been well aware that in operations for the removal of carcinomatous tissue, great care is necessary to avoid contamination of the non-invaded tissues, and when the cancer has been entered accidentally they have very carefully discarded the infected instruments and used the cautery or fluids such as Harrington's solution in order to seal over

the exposed malignant surface. Many investigators such as Van Leyden, although recognizing the possible value of cancer vaccine methods, have hesitated to make injections of living cells, stating specifically that they did not dare to inoculate a patient with the very cells they had used such care to destroy. Innumerable clinical cases have attested that this fear is not unfounded and there should be no surprise that growths similar to the original should have occurred at the point of inoculation in Dr. Coffey's cases. It is particularly interesting to note, however, that in his case growth has only occurred when the patient's own tumor was injected. This is also in line with previous observations—for instance, no infection of a surgeon by cancer material while operating has been recorded. That certain tumors can be cured by the injection of cancer emulsion has been demonstrated by Dr. Gay of the University of California. Dr. Gay has shown that the history of certain implanted tumors can be divided into two periods rather sharply defined. First, the premetastatic, and second, the metastatic. During the first an injection of emulsion of homologous tissue causes the rapid disappearance of the growth. During the second no improvement occurs. Blumenthal caused a spontaneous rectal carcinoma of a dog to disappear by injecting an emulsion of part of the same tumor. He also cured sarcoma in dogs by vaccine. He found also that if this emulsion was autolyzed in the incubator for three days it no longer produced tumors when injected into the non-infected animals, nor had lost any of its therapeutic properties. In three weeks, however, it became inert. Vaughn, of Detroit, claims to have brought about improvement and prevented recurrence in human carcinomas by the use of a proteid split off cancer material. He has performed no animal experiments. That the body can destroy cancer cells and normal cells is well known and it is probable that a cure of cancer will be brought about by increasing the normal resistance of the body to the invasion of cancer cells. Whether this will be by means of vaccine or other methods must be determined in the future.

Stanley Stillman: I have had very limited experience with this method of treating cancer, and have been unwilling to use it to any extent for the reasons already stated by Dr. Ryfkogel. I have seen several cases in which recurrence of cancer has taken place in and around the field of operation, which was unquestionably due to infection at the time of the operation, and hence I have been unwilling to inject the material obtained from an individual's own growth. In one case, however, of recurrent cancer of the breast, in which the material injected was obtained from another patient, I have seen very marked improvement. Metastases in the skin softened and healed without ulceration, pain almost disappeared, and a mass in the root of the neck has perceptibly diminished in size and is much softer. Whether this is entirely due to the injection I am not able to say, but I have some doubt of it because the case shows remarkable spontaneous resistance to cancer. One breast was removed seven years ago and the other one the following year; and while there have been cancerous nodules and enlarged glands in the breast five years, the patient was still holding her own at the time of the injection, although suffering much pain. Then, too, the material used in this case was particularly favorable, possibly because the growth from which it was obtained was quite liquefied in its interior, and ought to furnish an unusual amount of antibodies. As stated by Dr. Coffey, there seems to be little likelihood of producing cancer at the site of injection when the material is obtained from another individual. I am not willing to inject a patient upon which I have already done a very radical piece of work for cancer, with material obtained from his own growth, for I know that there is danger of producing cancer at the site of the injection.



**SOCIETY REPORTS****CALIFORNIA ACADEMY OF MEDICINE.**

The California Academy of Medicine held its regular meeting on Monday evening, Jan. 23rd. The scientific program was as follows:

1. A Report and Exhibition of Border Line Cases, with demonstration of X-Ray plates. C. M. Cooper and Geo. L. Painter.

Discussed by Drs. Newton, Moffitt and Cooper.

2. Pure Food Lore for Physician and Patient. Prof. M. E. Jaffa.

The following were duly elected to membership: Drs. Gay, Meyer, Zinsser, Crawford, Rusk, Hoag, Eloesser, Lee and Schmitt.

Refreshments were served at the close of the program.

**COOPER COLLEGE SCIENCE CLUB.**

The regular meeting of the Cooper College Science Club was held on Wednesday, January 18, 1911, at 8:30 p. m. The scientific program was as follows:

1—A Case of Volkman's Ischaemic Contracture, by M. E. Rumwell. Discussed by Drs. Huntington, Stillman, McClenahan and Rumwell.

2—Three Cases of Late Congenital Syphilis of Viscera, by Wm. Fitch Cheney. Discussed by Drs. Cooper, McClenahan and Cheney.

3—A Case of Pleuro-Pericarditis with Obstruction of the Inferior Vena Cava, by W. R. P. Clark. Discussed by Dr. Cooper.

Refreshments were served at the close of the program.

**COOPER COLLEGE SCIENCE CLUB.**

The regular meeting of the Cooper College Science Club was held on February 6, 1911. The scientific program was as follows:

1—(a) A Case of Polycythemia with Splenomegaly.  
(b) A Case of Alkaptonuria with Pigmentation of Skin and Cartilages. (Major P. M. Ashburn, United States Army.)

Discussed by Dr. W. C. Alvarez.

2—A Case of Cervical Adenitis with Medical and Surgical Treatment, with demonstration. (Ade-laide Brown, M. D.)

Discussed by Drs. Stillman, Winterberg, Sewall, Wilbur, Clark, Eloesser, Gray, Dickson, Brown.

3—Xanthelasma, with demonstration of cases. (G. H. Mize, M. D.)

Discussed by Drs. Morrow, Friedlander, Alderson, Ophuls, Alvarez, Stillman, Haas, Ashburn, Mize.

Meeting adjourned.

**MONTEREY COUNTY.**

At the annual meeting of the Monterey County Medical Society the following officers were elected for the year 1911:

Dr. T. C. Edwards, president; Dr. A. M. Ritchie, vice-president; Dr. H. T. Crabtree, secretary; Dr. John Parker, treasurer; Dr. H. B. Christiansen, censor; Dr. Garth Parker, delegate to State Society; Dr. W. A. Lillie, alternate.

The January meeting was held in Monterey. The February session will be at Salinas.

H. T. CRABTREE, Secretary.

**SANTA CLARA COUNTY.**

I herewith give you the names of the officers of the Santa Clara County Medical Society: President, Dr. Jonas Clark, San Jose; first vice-president, Dr. Wm. S. Van Dalsem, San Jose; second vice-president, Dr. Harry G. Reynolds, Palo Alto; third vice-president, Dr. Robert L. Hogg, Saratoga; secretary,

Dr. W. T. McNary, San Jose; treasurer, Dr. H. J. B. Wright, San Jose; councillors, Dr. J. J. Kocher, Dr. Newel H. Bullock, Dr. Chas. M. Richards; delegates to State Society, Dr. Lincoln Cochran, Dr. Henry C. Brown; alternates, Dr. L. V. Saph, Dr. M. D. Baker, Dr. J. L. Benepu, Dr. Edward Holbrook.

W. T. McNARY, Secretary

**SANTA CLARA COUNTY.**

Resolutions of respect, adopted by the Santa Clara County Medical Society to the memory of Drs. Elizabeth Gallimore and G. F. Witter, members of this Society recently deceased:

Whereas, Within the last year we have lost from our number, by the hand of the Great Reaper, two of our most esteemed members; and

Whereas, We, the members of the Society, feel deeply the loss of our co-practitioners; therefore

Resolved, That we, the committee appointed by the president, do express the feeling of the Society; and be it further

Resolved, That a copy of these resolutions be sent to the bereaved families, to the local press, the State Journal of Medicine, and a copy spread upon the minutes of the Society.

P. A. JORDAN,

J. W. PAUL,

Committee.

**TULARE COUNTY ORGANIZED.**

About twenty of the physicians of Tulare County, responding to an invitation sent out by the Secretary of the State Society and a personal letter from Dr. Austin Miller of Porterville, met at the Palace Hotel, Visalia, on the night of January 21st, and organized the Tulare County Medical Society. The Constitution and By-Laws recommended by the American Medical Association was adopted, and the following officers were then elected to serve for the year 1911: President, Dr. T. H. Blodgett; vice-president, Dr. M. L. Petit; secretary-treasurer, Dr. F. L. Stallings. A number of physicians in the county, who could not be present at the meeting for organization, have sent in their names and expressed a desire to join the society, so that it starts out with something like thirty members. We certainly extend the best of good wishes to this newest of our component societies, and sincerely wish for it a long and a successful life.

**BOOK REVIEWS**

**Three Contributions to the Sexual Theory.** Sig-mund Freud, LL. D., Vienna. Jour. of Nerv. and Ment. Dis. Monograph series No. 9, 91 pages.

This brief monograph, as the title signifies, deals with the sexual problem. It may be characterized, in fact, an an outline sketch of a new system of clinical psychology. Whether or no, therefore, one chooses to accept the author's doctrine, it is extremely interesting to follow the thread of his argument, if only to ascertain in what essential points he diverges from current beliefs.

It is a curious fact that the repressive faculties which normally relegate the sexual activities to a circumscribed sphere and stamp the individual with a certain seal of morality, naturally awaken both disgust and repugnance at the thought of permitting the mind to engage in such studies. It is for this reason, most likely, that the works of Havelock Ellis and Krafft-Ebing, instead of contributing to the information of the cultured classes, are to be found upon the shelves of every second-hand book shop, side by side with the cheap salacious literature which circulates in the under-world.

Brushing aside prejudice, Freud boldly sounds the depths of the great uncharted sea of sexuality which

everywhere lies hidden beneath the social fabric, and reveals laws of ebb and flow hitherto unsuspected. With the subtle judgment of a trained psychologist, moreover, he treats the subject with such consummate tact as never to weary the attention. He bears one swiftly forward on the current of his logic. One feels at once the impact of a magnetic and vigorous mind whose lance-pointed intuitions are ever controlled by sober judgment. Indeed, one cannot escape the impression that he holds a tremendously strong imagination in check whilst, with singular felicity of expression, he outlines the principles of his philosophy. These three brief essays, alone, sufficiently manifest his extraordinary acuteness of intellectual vision. It remains to be seen, however, to what extent his theories will gain acceptance.

His method is partly analytical, partly synthetic. His professed object is a reconstructive and analytical study of the psycho-neuroses. Perhaps the main thought may be stated by saying that just as in the reversed reactions of bio-chemistry we witness dissociation and reunion occurring in the same system, so, in the psycho-neuroses, there is a similar relation to primitive elements, which, latter, are to be sought in the sexual manifestations of infancy and early childhood. In other words, between the two states a more or less definite isomerism exists. The conception is brilliant and not without foundation. Like the mysteries of serum therapy, however, his theory draws us enticingly towards the unknown, only to emphasize at the last our utter dependence upon vitalism.

In these essays the author deals with general principles only. No account is given of his method of treatment. C. Q.

**Diseases of the Anus, Rectum and Sigmoid.** By Samuel T. Earle, M. D., Professor Emeritus of Diseases of the Rectum in the Baltimore Medical College. 476 pages with 152 illustrations. J. B. Lippincott Co., 1911.

This volume from the pen of Dr. S. T. Earle is bound to be of value to anyone interested in diseases of the anus, rectum and Sigmoid-Colon.

Almost since the inception of the American Proctologic Society Dr. Earle has been selected to review at each annual meeting the proctologic literature of the previous year. His accessibility to the Surgeon General's library at Washington has kept him in touch, and has made him familiar, with everything on the subject. One would therefore look to his book for the latest and best things gleaned from the field of proctology. And there is no disappointment, for throughout the book one can see, and marvels much at, the vast amount of literature that has been perused and edited by the author.

The opening chapter on the anatomy and physiology is brief but all sufficient. The illustrations of the fine dissections of Dr. Arthur Hebb, who has long been associated with Dr. Earle, are especially to be commended. A very good description of the inverted position for proctoscopic examination and treatment, as devised by Mathews and Hanes, will be found in the chapter on diagnosis and examination. To those who place much value on the use of spinal anesthesia in rectal surgery it will perhaps seem rather strange to read Dr. Earle's dictum that he cannot consistently recommend its use. The section on constipation is a very good one. While of necessity it cannot deal with the details to be found in such a book as Gant's latest work on Constipation, yet it will be of worth to the busy practitioner who above all desires *multum in parvo*.

Like most recent writers on this subject Earle advises that excision should supplant forcible dilatation, so much in vogue among the general surgeons, in all cases of chronic fissure in ano. It is with surprise that one notes the absence of any reference to Beck's method of treating fistulae with the injection of bismuth paste. This deserves mention even were

it only used as a diagnostic method in conjunction with the Roentgen rays. Earle's modification of the Whitehead operation, which does away with most of the objections urged against the latter is described at length in a well illustrated chapter. The illustrations of pathological growths are also all new and of much value.

Dr. Earle has drawn liberally upon, and very generously credited, the writings of the Fellows of the American Proctologic Society. After a labor of many months he has produced a volume that is an index of the scholarly attainments and professional skill of its author. It will be a welcome addition to the library of every specialist, and is a book that should be referred to with confidence by anyone who only occasionally needs its aid. A. J. Z.

**Handbook of Electro-Therapeutics.** By Wm. J. Dugan, M. D., Lecturer on Electro-Therapeutics in Jefferson Medical College, Philadelphia; Physician-in-Charge of Electro-Therapeutic Department, Jefferson Hospital; Fellow of the American Electro-Therapeutic Association, etc. 242 pages; illustrated. F. A. Davis Co., Philadelphia, Pa., 1910.

This book contains a good deal of useful information for the student, but for the advanced worker is too general in its scope, and obviously a scientific grounding in electricity is taken for granted.

The author tries to cover too large a field, touching on all forms of electricity, magnetism, vibration and X-ray.

Special attention is paid to the explanation of the electrical apparatus to select and how to use it. The appendix discusses some of the latest thoughts on death by electricity and resuscitation of persons shocked by the electric current. The work as a whole can only be recommended as an elementary book. N. S.

#### NEW MEMBERS.

White, G. R., Auburn.  
Pearson, R., Sacramento.  
Gearhart, S. C., Challenge.  
Lantz, Viola, San Jose.  
Howell, H., San Jose.  
Posey, A. C., San Jose.  
Higgins, O. C., Porterville.  
Preston, A. W., Visalia.  
McLean, A. D., Exeter.  
Chilson, W. C., Tulare.  
Martin, L. A., Pt. Richmond.  
Okanogi, B., Fresno.  
Horstman, Elsa A., Los Angeles.  
Breed, L. M., Los Angeles.  
Ashby, R. H., Roseville, Calif.  
Sunburnt, W. I., Floriston, Cal.  
Burch, E. L., Raymond, Cal.  
Hilliard, C. G., Redlands, Cal.  
Hanvey, C. B. H., Oakland.  
Rossin, J. B., Tulare.  
Barber, S. A., Porterville.  
Bond, Hughes, Lindsay.  
Blackledge, L. N., Ora.  
Miller, Austin, Porterville.  
Fuller, R. N., Tulare.  
Beck, J. E., Tulare.  
Mix, P. A., Exeter.

#### RESIGNED.

Outwater, S. R., Riverside.  
Hewlings, Hester A., Address unknown.  
Grimes, W. V., Pacific Grove.  
Rankin, J. E., Gonzales.

#### DEATHS.

Rottanzi, T. A., San Francisco.  
Craig, L. A., San Francisco.  
Thrasher, C., San Francisco.



# California State Journal of Medicine.

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PHILIP MILLS JONES, M. D., Secretary and Editor

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## IMPORTANT NOTICE

All Scientific Papers submitted for Publication must be Typewritten.

Notify the office promptly of any change of address, in order that mailing list and addresses in the Register may be corrected.

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APRIL, 1911.

No. 4

## EDITORIAL NOTES.

### SPECIAL NOTICE

#### RAILROAD RATES AND TIME LIMITS.

The special rate of one and one-third fare for the round trip has been made for the Santa Barbara Meeting, April 18th, 19th and 20th. The sale dates for the going trip are April 8th to 21st, inclusive. For the return trip, reduced rate tickets will be sold for points south of Santa Barbara April 18th to 24th, inclusive, and to points north of Santa Barbara April 18th to May 1st, inclusive. These time limits will allow all those who wish to do so to take side trips from Santa Barbara before returning home.

The Annual meeting of the Medical Society of the State of California will be held this year at the Potter Hotel, Santa Barbara. An excellent program has been arranged by the Committee on Scientific Work, Dr. Lobingier, Chairman; this will be found on another page of this issue of the JOURNAL. Every County Society should be represented in the House of Delegates, as matters of importance will come before that body, and in these things the whole state is interested. The Society was never in so good a condition, both as to live interest and financially, as at the present time. Our latest venture, Medical Defense, is

working most satisfactorily and, for more than a year and a half, every member of every county society has been amply protected. Other ways in which the State Society may be of use to its members will be brought forward and considered at this meeting, and a full attendance of delegates should be present to consider them and to explain these things to their respective societies. Through co-operation we can do a great deal for ourselves and each other; but it is difficult to co-operate if the other fellow stays at home instead of coming to the meeting and helping to thrash things out. The hotel is comfortable and the rates reasonable; the scientific program is good; our professional brethren of Santa Barbara have extended a most cordial welcome and we will certainly have a good meeting and a very pleasant time. Be sure and make it a point to attend the meeting; especially if you are a delegate.

For the last several years the hall of commercial exhibits has been one of the very interesting features of the meetings. This year THE A. M. A. will undoubtedly be no exception to the rule and already a large amount of space has been taken. It is quite possible that there are some of our Western manufacturers who have not yet realized the great advantage of these exhibits and have not as yet contracted for their space. If such there be, they should at once write to the American Medical Association, Will C. Braun, Superintendent of Exhibits, 535 Dearborn Avenue, Chicago, Ills., and secure contract blanks, diagrams, etc. This year the exhibit hall is particularly well adapted for the purpose and practically all the spaces for booths are well placed; in fact, all the space is good.

The Physicians' Defense Company, of Fort Wayne, Ind., has a "stock form" letter which it is sending out to former policyholders who, being members of the State Society, have decided not to contribute any longer to the profits of this company when they can be absolutely sure of getting full protection from the Society so long as they keep their dues paid up. The letter which the company sends is full of large sounding phrases—and a great deal of "taffy." Some of the statements, indeed, the company would find it exceedingly difficult to substantiate. We have no quarrel with this or with any other company. A great many instances in which it has been open to severe censure might be cited, but what is the use? All we ask is to be let alone so that we may quietly—and effectually—mind our own business and continue to defend, successfully, our members when they are sued for malpractice. To read the stuff

the company writes to our members when they refuse to pay unnecessary sums into the profits of the company, one would think that they had a corner on all the brains, common sense and legal acumen the world ever produced. But the fact remains that the protection of the State Society is better than that of this company and all the others combined. The Bulletin of the Los Angeles County Medical Association, in commenting on a recent suit in Los Angeles, said that the attorneys for the company in which the defendant, Dr. Rae Smith, held a policy "acted so queerly" that they hardly participated in the suit at all and that, had it not been for the attorneys of the State Society, the outcome of the suit might have been doubtful. Be that as it may, the fact remains that it was the attorney for the State Society who did all the work; and the defendant, Dr. Smith, got the verdict. That looks like medical defense that really protects. If you want to pay money to an insurance company, as a sort of philanthropic proposition, why go ahead; but you do not need to do so—the State Society Medical Defense really defends.

The balance sheet of the New York Life Insurance Co., published as an advertisement in some very expensive publications, is a curiously interesting document. In **INSURANCE EARNINGS.** the first place, what they have on hand in the way of investments, etc., has increased so as "to represent an annual addition to net income of nearly \$1,100,000." Quite a tidy sum, especially when we read under "disbursements," the item "Med. Exam'n and Ag'cy Supervision—\$1,277,027.66." How much of this is agency supervision is not stated, but probably it is at least half; suppose we assume that \$638,000 was paid for medical examinations during the period covered by the statement. Compare that with the \$1,100,000 additional profits mentioned above—and then remember that this is one of the "three dollar" companies. We may further learn that \$2,937,629.25 was paid out for commissions on new business, these new policies bringing in premiums to the amount of \$6,516,105.78. In other words, something like 44% of the amount of new premiums received is paid in commissions, the holdings bring in an increased income of more than a million dollars, but the company can not afford to pay a minimum \$5 fee for making the examinations upon which the success of its business is based! And we physicians have allowed this to happen!

For any manufacturer to claim that there is the slightest legitimate reason for refusing to submit his preparations to the **PROPRIETARIES COUNCIL ON PHARMACY AND GOOD AND BAD.** Chemistry of the American Medical Association, is to assert an absurdity. Most reputable manufacturers have found this out and now acknowledge it. The rules of the Council are simple and fair; they are honest to all concerned and in fact the one actuating spirit of the Council is *honesty*. If a preparation is rejected by the Council, there is a good reason for it; of that you may be entirely sure.

The JOURNAL has been taken to task for printing some remarks reflecting upon a preparation known as "olivoint," put out by the Olivoint Chemical Co.; a "home" concern and a "home" product. Olivoint is said to be "Antiseptic—Sedative—Soothing—Healing—For Sunburn, Poison Oak, Burns, Itching Wounds and Skin Diseases." It was submitted to the Council and was by the Council rejected for the reason that the package did not comply with the rules of the Council in that it stated the diseases for which the preparation was intended. The rule is a good one. It has been the case, without known exception, that a preparation first presented to the medical profession and by them favorably regarded, eventually went straight to the public if the diseases for which it is intended to be used were stated in the printed matter accompanying the original package; it teaches people to harm themselves by self-drugging. Therefore the rule of the Council. Physicians who order or prescribe "Olivoint" are helping to put upon the market another proprietary that will be sold direct to the public in the end. Other preparations put out by this company are "Tyoga Phosphate Compound et Lith" (a choice collection of languages!). This is "An alterative in diseased conditions" and "A prophylactic to prevent disease." How like the old style patent medicine advertisements that last phrase sounds! Then we have "Albathyme," which is a "perfumed antiseptic powder" for "Leucorrhea, Gonorrhea, Otorrhea, Vaginitis, Cystitis, Pruritis." Why should we be proud of these things because they are "made in California"? They have not been approved by the Council; we do not know of what they are composed; the language of the advertising "literature" is bad. There are enough good proprietaries that have been approved by the Council; any honest proprietary will be approved by the Council; let us refuse to use these secret remedies; let us refuse to help make any more "patent medicines" or "Fulton's compounds."

The editorial breast is filled with gratitude almost to the explosive mark! The *Indiana State Journal* recently called attention to and entered a protest against the carelessness of authors in preparing papers for publication; the *Journal* of the A. M. A., evidently also feeling the sympathetic touch in the editorial breast, took this up and commented on it, quoting Byron to the effect that "easy writing makes d——d hard reading." The awful mess that some physicians will gather together and send to a journal expecting it to be published, is almost beyond the power of words to express, for the alleged manuscript is often not composed of words (at least any known words in any known language) but of wonderful and fearful combinations of letters—supposedly abbreviations—signs, symbols, hieroglyphics and, occasionally, partly intelligible collections of words a few of which make sentences. Particularly is this true when the author has graciously favored the publication with some case reports accompanied by charts and bedside notes. Heaven is really the home of these "authors"—but they won't go home!



**PRELIMINARY PROGRAM OF THE**  
**FORTY-FIRST ANNUAL MEETING OF THE MEDICAL SOCIETY OF THE STATE**  
**OF CALIFORNIA, SANTA BARBARA.**  
**APRIL 18TH, 19TH and 20TH, 1911.**

**Notice:** The meeting is to be held at the Hotel Potter where special rates on the American plan have been made for our members.

**Railroad Rates.** The usual rate of one and one-third fare for the round trip will be in force. Pay your full fare for the going ticket and be sure to get a receipt certificate, which must be signed by the Secretary at Santa Barbara. The return ticket will then be sold to you for one-third fare.

**Reservations** for rooms should be made as soon as possible so that the hotel may properly take care of your comfort. Address the Hotel Potter, Santa Barbara.

Remember the date—April 18th, 19th and 20th, 1911.

**Session on Eye, Ear, Nose and Throat.**

- "The Eye in Its Relation to General Medicine"  
.....Dr. Herbert C. Moffitt, San Francisco
- "The Value of Wassermann Reaction for the  
Eye, Ear, Nose and Throat Surgeon"  
.....Dr. Kaspar Pischel, San Francisco
- "The Eye in Its Semeiological Aspect".....  
.....Dr. William F. Blake, San Francisco
- "Report of a Case of Carcinoma of the Eye-lid"  
.....Dr. Hugo A. Kiefer, Los Angeles
- "The Value of the Graphic Method in the  
Study of Speech Defects".....  
.....Dr. Henry Horn, San Francisco
- "Report of Case of Mikulicz Disease".....  
.....Dr. James A. Black, San Francisco
- "A Résumé of the Modern Operative Proce-  
dures of the Ear".....  
.....H. B. Graham, San Francisco
- "Nerve Injections with Alcohol".....  
.....Dr. H. S. Moore, San Francisco
- "Report of Cases of Removal of Foreign Bodies  
from the Lungs," Dr. E. C. Sewall, San Francisco

**Session on Internal Medicine.**

- "Some Types of Intestinal Indigestion in Chil-  
dren".....Dr. R. L. Porter, San Francisco
- "Intestinal Indigestion in Adults".....  
Drs. E. Schmoll and W. C. Alvarez, San  
Francisco.
- "Intestinal Indigestion from a Surgical Point  
of View".....Dr. Rae Smith, Los Angeles
- Discussion opened by Dr. Dudley Fulton,
- "The Experimental Basis for Vaccine Therapy"  
.....Dr. F. P. Gay (by invitation)  
Los Angeles.
- "Medical Aspects of Vaccine Therapy".....  
.....Dr. Herbert C. Moffitt, San Francisco
- "Substances Derived from Leukocytes and Their  
Protective Value".....  
.....Dr. Hans Zinsser (by invitation)
- "The Wassermann Reaction in Various Dis-  
eases".....Dr. H. R. Oliver, San Francisco
- "Clinical Types of Osteo Arthritis of the Spine"  
.....Dr. C. M. Cooper, San Francisco
- "Arteriosclerosis; Review of Cases".....  
.....Dr. Donald Frick, Los Angeles

- "The Relation of the Tonsils to Tubercle  
Bacilli"...Dr. Carl C. Warden, Los Angeles
- "The Treatment of Hemoptysis in Tubercu-  
losis"....Dr. Max. Rothschild, San Francisco
- "Relative Insufficiencies of the Myocardium"  
.....Dr. H. D'Arcy Power, San Francisco
- "The Cell in Modern Medicine".....  
.....Dr. Hoell Tyler, Redlands
- "Diseases of the Nose and Throat in Children  
from the Viewpoint of the General Prac-  
titioner".....Dr. N. H. Bullock, San Jose

**Session on General Surgery.**

- "The Surgical Significance of Papillodema"...  
.....Dr. Leon W. Mansur, Los Angeles
- "The Diagnosis of Certain Peculiarly Situated  
Intracranial Growths".....  
.....Dr. Thomas J. Orbison, Los Angeles
- "The Indications, Technic and Results in De-  
compressive Operations".....  
.....Dr. Wallace I. Terry, San Francisco
- "Report upon Studies of Hydrocephalus, Cases  
Number Two and Number Three".....  
.....Dr. Harry M. Sherman, San Francisco
- "The Surgical Management of Subtentorial  
Cysts and Tumors".....  
..Dr. Andrew Stewart Lobingier, Los Angeles
- Discussion opened by Dr. Stanley Stillman, San  
Francisco.
- "Left Sided Colon; Failure of Rotation of the  
Primary Gut".....  
.....Dr. Emmet Rixford, San Francisco
- "Acute Hydro Nephrosis; Operation; Speci-  
men"...Dr. William A. Edwards, Los Angeles
- "Intestinal Hemorrhage in Hernia".....  
.....Dr. Rexwald Brown, Santa Barbara
- "Abdominal Pain; Its Significance and Treat-  
ment".....Dr. C. P. Thomas, Los Angeles
- "Perforation of the Stomach Into the Trans-  
verse Colon with Occlusion of the Upper  
Portion of the Duodenum; Report of a  
Case".....Dr. H. J. B. Wright, San Jose

**Session on Nervous and Mental Diseases.**

- "The Treatment of Tic in Children".....  
.....Dr. E. C. Fleischner, San Francisco

"Educational Methods in the Mentally Defective".....Dr. J. Ross Moore, Los Angeles  
 "Mental Hygiene and Prophylaxis".....  
 .....Dr. G. V. Hamilton, Santa Barbara  
 "State Hospital Care for Curable and State Farm Care of Incurable Alcohol and Drug Habitués".....Dr. A. W. Hoisholt, Stockton  
 Discussion to be opened by Dr. C. L. Allen, Los Angeles.

#### Session on Obstetrics and Gynecology.

"Pus Tube Complicated by Ectopic Gestation with Report of a Case".....  
 .....Dr. E. M. Lazard, Los Angeles  
 "Prophylaxis of Toxemia During Pregnancy"  
 .....Dr. Titian J. Coffey, Los Angeles  
 "Caesarian Section; Report of a Series of Cases".....Dr. M. L. Moore, Los Angeles

Discussion to be opened by Dr. Charles A. Dukes, Oakland.

"Uterine Displacements".....  
 .....Dr. Samuel H. Buteau, Oakland  
 "Prevention of Post Obstetrical Lesions"....  
 .....Dr. David Hadden, Oakland  
 Discussion to be opened by Dr. Henry P. Newman, San Diego.

#### Skin Diseases.

"The Treatment of Epithelioma by Curetting, Followed by Cauterization with Chromic Acid and Later by Exposure to the X-Ray".....Dr. George D. Culver, San Francisco  
 "The Skin as Affected by Internal Secretions"  
 .....Dr. Henry E. Alderson, San Francisco  
 "Geographic Influences in the Etiology of Skin Diseases".....Dr. E. D. Chipman, San Francisco

At the time of writing the legislature has not adjourned and so it is not possible to give a final statement as to what occurred  
**LEGISLATIVE** at Sacramento. Some things,  
**HAPPENINGS.** however, can be foreshadowed.

Senator Hurd, of Los Angeles, appropriately representing the "Mecca of the quack" (no offense intended toward our Los Angeles physicians), announced his intention to "bust" the "medical trust." One must suspect that Senator Hurd is strongly influenced by the self-styled league for "medical freedom." At any rate, he introduced a number of amendments to the present law; and his bill was defeated. He then moved to reconsider and when it came to reconsideration, he amended everything out of the bill except a clause allowing the Governor to appoint the Board of Medical Examiners without any nominations from the various state societies. Some bills introduced by the board and prepared by the board's attorney, were so amended out of shape that it is the intention to allow them to die a quiet death. The anti-vaccinationists agreed with the State Board of Health upon a compromise law which was passed and signed by the Governor. In many ways it is as good as the old law and in some respects it is better; in all probability it will secure the vaccination of a larger number of children, in the long run. That notorious cancer quack of Oakland, Bohanon, had an amendment introduced through an influential attorney in Oakland, which would have licensed him to continue his lucrative occupation of gulling the unfortunate victim of cancer. Even if passed, the amendment was clearly unconstitutional. It stated, in effect, that any one who had successfully broken the law of the state for 15 consecutive years, should then be licensed for so-doing! And they say some people have no sense of humor!

Advertising space in publications such as *Colliers*, the *Ladies Home Journal*, etc., is expensive; the rates are very high because the circulation is large and the demand for space is great. But these, and similar publications,

**WHY DO THEY DO IT?** use their own space to print matter referring to their own publications; also, they advertise in other publications. Why? Would they do it if it did not pay? The whole nature of the advertising business and of advertising has radically changed in the last few years. Almost every one who reads a publication of any sort, looks through the advertising pages and a majority of people read these pages carefully. It is profitable to the reader to do so. He sees many new things presented to him; he sees new statements in regard to things he has known about; he sees suggestions concerning something that directly interests him—and he has every reason to believe that the statements in the advertisements are true. Nearly all high-class magazines are very careful about the character of the advertising they publish. A few years ago the only question was whether the advertiser could pay his bills; now the question is at least as important—*is the advertiser reliable?* If you do not at least look through the advertisements in the periodicals you read, you are making a sad mistake; you are not keeping up to date. The history of to-day's passing events in the commercial world is written in the advertising pages of current periodicals. And the same thing is true in medicine; if you are not reading the advertisements in such publications as the *Journal* of the A. M. A., and your own *JOURNAL*, you are not keeping up to date. In these medical journals, and a few others, you may be sure that no advertisement will appear that is not absolutely reliable. No medical preparation will be advertised unless it has been approved by the Council on Pharmacy and Chemistry; no house, hospital, sanitarium, manufacturer or publisher that is not known to be of good repute can buy advertising space in these journals. The manufacturer is correct in believing that the



doctor who does not look through the advertisements in such journals, is not keeping up to date. New instruments, new books, new preparations or statements of newly discovered facts about older ones, are here presented to you. Proper advertising is as much a part of a modern periodical as is proper reading matter, and it is quite as valuable both to the reader and to the publisher. It is a mistake to belittle the importance, to you, of the advertising pages of the publications you read—if they are high-class and reliable. It is a mistake to think that you are doing the advertiser a favor by reading his advertisement; very often it is just the other way around, and the advertiser is telling you the one thing you ought and want to know. It pays to read advertisements.

### AN IMPROVED TECHNIC OF VACCINATION.\*

During the past four years in the children's clinic of Cooper Medical College, over eleven hundred children have been vaccinated with the following simple technic:

The area to be vaccinated is thoroughly cleansed with green soap and alcohol, and then allowed to dry. A piece of sterile gauze, consisting of two layers, is placed over the operator's index finger, and the area is rubbed with considerable pressure, from above downward until the superficial epithelium is removed, and serum exudes from the surface. In this manner an area a square inch in diameter can be prepared in a very short time, no blood flows, there is absolutely no discomfort to the child, and a clean red surface is left for the application of the vaccine. After this is done the point covered with the vaccine is applied, rubbed for about thirty seconds over the denuded area, and the excoriation left uncovered to dry.

In this series of cases no dressings, such as shields of any kind, tight bandages, or adhesive plaster were used but a simple dressing applied as follows: A piece of sterile gauze six inches square, and four or five layers in thickness is placed over the vaccinated area, and pinned to the overlying garment, or undershirt. The parents are directed to place a clean piece of gauze over the wound every night, with no bandages or applications, and at the end of a week the child is brought back to the clinic for observation.

The advantages of this method are that there is, no instrument used for excoriation, which will frighten the child, pain from the denudation of the area is eliminated, and a large, clean, bloodless area is prepared in a very short space of time. The use of shields and tight bandages produce congestion and often infection, and once an infected area is bound down by a tight and dirty shield serious complications result. The loose dressing eliminates infection, is clean, and easily changed daily.

Out of eleven-hundred cases treated in this way at the clinic, only one infection occurred, and this we attributed to a shield bound down by adhesive plaster, put on the child's arm after he left the clinic.

H. H. Y.

\* From Children's Clinic, Cooper Medical College—Langley Porter, M. D., Chief of Clinic.

### ANTITYPHOID VACCINATION

Experiments on the immunization of animals with typhoid bacilli were reported in 1892, and in 1896 Pfeiffer and Kolle, in Germany, immunized 2 men with dead cultures. About the same time Sir A. E. Wright accomplished the same feat, and as a result of his indefatigable energies in the pursuit of this work, the method was introduced as a prophylactic measure for all soldiers going to the British possessions. The results, however gratifying, were not up to expectations, so that although over 150,000 soldiers had been vaccinated by 1902 and the incidence of the disease reduced one-half, and the mortality two-thirds, the method was discontinued because of some severe reactions following injections. It was later shown that certain defects in the preparation of the vaccines accounted for the relatively poor showing. In 1904, a commission having been appointed to investigate the whole subject, vaccination was re-introduced in the army.

The results of inoculation of the German South African troops were far better, but it was Leischman's report in 1907 of the excellent results obtained in the British Colonial troops, that commanded the attention of all engaged in the field of sanitation. Even the United States Army took official notice, Major Russell in 1908 being sent to England to study the methods and results of Colonel Leischman. On his return, his report was submitted to a board of eight medical officers of which he acted as recorder, and the Surgeon-General as president. The other members were Victor Vaughan, Wm. Councilman, John Musser, Alex. Lambert, Simon Flexner and Wm. Thayer. The board recommended the introduction of antityphoid vaccination in the U. S. Army, and the Surgeon-General immediately instructed medical officers to urge its trial by all volunteers, as well as in their own and the nursing corps. By the first of March, 1909, in a laboratory specially fitted up for the manufacture of the typhoid vaccine, in Washington, the immunization of volunteers was begun.

Major Russell (*Bost. Med. and Surg. Journ.*, Jan. 5, 1911), reports 14,000 persons vaccinated, approximately one-sixth of the force. Of those vaccinated, six have since then been treated for typhoid fever, though in only one was the diagnosis confirmed by laboratory methods. Two of the cases were so mild as to cast a reasonable doubt upon the diagnosis. All six recovered. Among the remainder of the army, during the same length of time, there have been 418 cases, with 32 deaths. Had the entire army been vaccinated, the same rate of incidence would have given only 36 cases rather than 418, a number 15 times smaller.

Such a report of results obtained in our own army, by men working in our very midst, should certainly lead to a more extended trial of the method in our own civil population. As Russell states: "In civil life there are many occasions on which antityphoid vaccine may be used with advantage, as in hospitals receiving typhoid cases. This has

already been done by Richardson and Spooner, in this city, and a beginning has recently been made in one hospital in New York. It is certainly worth while to vaccinate the entire personnel of a hospital if by that means one or two cases of typhoid may be prevented each year. It may also be used to advantage in industrial villages, mining and railway camps, insane asylums and other public institutions, and in schools and colleges."

Spooner inoculated 74 nurses, 9 house officers and 6 ward tenders in the Massachusetts General Hospital. It is over a year since this was done, and up to date no cases of typhoid have been recorded.

The writer vaccinated one nurse immediately after she had acted as donor in an operation for transfusion on a virulent case of typhoid, and another nurse after four weeks of nursing this same case, and at a time when to use her own words: she was very much "run down." Since then he has vaccinated two other persons.

To afford a satisfactory immunity, three injections are given at 10-day intervals. The first dose should be of 500,000,000 bacilli, the second and third doses just double the first. The vaccine should be injected subcutaneously, preferably at the insertion of the deltoid. A local reaction, consisting of redness, swelling and tenderness not infrequently occurs, but in from 48 to 72 hours even the severest have subsided. In 95% of the cases, aside from the possible discomfort associated with a tender arm, there is no other symptom than an occasional headache or slight rise in temperature up to 100°, oftentimes ignored by the subject. The moderate and severe general reactions make up the other 5%, and very few of them are really troublesome. Russell believes that persons who show great susceptibility to the vaccine are those who would present the least resistance to the disease if naturally infected, although this might seem refuted by his own statement that the fact that a man has already had typhoid seems to increase the chance of having a severe reaction. On the 5th or 6th day following the first inoculation, agglutinins appear, and rapidly increase. A Widal reaction is often present in dilutions of 1-5000, occasionally up to 1-20,000.

A careful consideration of all reported results goes to show that the immunity developed may last two years and even longer. The best proof that the reactions are not to be feared, is the fact that no subject has been injected a second or third time without his volunteering to do so. The belief first entertained, that it might be dangerous to inject a person already exposed to the disease,—the fear of the so-called negative phase,—has been shown to be unfounded. There is no doubt but that the present preparation of the vaccines—killing the cultures at a temperature of 53° C. and the addition of lysol after cooling,—will be so perfected as to do away with the possibility of any but mild reactions.

The only objections that can be raised against the prophylactic use of typhoid vaccines are the possibility of an uncomfortable reaction and the fact that immunity does not last a lifetime. Have these same objections to Jennerian vaccination converted many sane physicians to the ranks of anti-vaccinationists?

R. B.

## ORIGINAL ARTICLES

### THE COMMITMENT OF THE INSANE IN THE STATE OF CALIFORNIA.\*

By A. W. HOISHOLT, M. D., Stockton.

In an address delivered before the California Northern District Medical Society on October 13, 1896, I began this subject with the following sentence: "The lunacy laws relating to the commitment and detention of persons alleged to be insane, which are in effect at the present time in the state of California, have not been essentially modified for twenty years." Fourteen years have elapsed since then, and during this time a new lunacy law has been enacted, and this later modified, but nevertheless the manner in which the welfare of these poor unfortunates is looked after previous to their transfer to the State Hospital is today only to a slight extent an improvement upon what it was then. The new law appeared to provide for better qualified examiners in lunacy by the requirement of an application for appointment as examiner, which for a short time was confined to one, two or more physicians with their alternates, according to the size of the community. Of real educational requirements, however, there were none, and it was but a short time before quite a number of physicians had been appointed in each county, with the exception of the city and county of San Francisco, where the number of examiners has for years been limited to four. In the new law it was provided that the person arrested should be detained five days before commitment would be finally determined upon. This proviso has in the course of time been disregarded so generally that of late it has become a not infrequent observation that persons, in whose cases there was no reason for a hurried transfer, have reached the asylum in 24 to 36 hours from the time of their arrest. There should of course be no routine to be followed in all cases. In very acute mental illness, unnecessary delay should be avoided, while in others, for instance certain alcoholics, a delay of a few days would frequently lead to a convalescence from the self-limited state of delirium tremens, where this had not been recognized.

In certain large communities (in San Francisco, for instance,), the alleged insane are today receiving a little more consideration as to comforts than was the case in 1896. In many smaller communities they are today placed in jail with other prisoners, and are, in general, not accorded the attention a sick person should have. It is, however, not alone the physical care during the period between arrest and commitment which is at fault, it is rather more the investigation and the resulting judgment, i. e., the medical opinion which, generally speaking, is defective by reason of lack of knowledge and experience, and because of the insufficient time given to the examination. At a result the person's mental state is, on an average, only judged as to whether it deviates from the normal or not. In many instances the examiner has shown an inability to judge between mental symptoms of a purely phy-

\* Read before the Sacramento Society for Medical Improvement, Dec. 20, 1910



sical disease, or a delirium tremens, on the one hand, and an idiopathic insanity on the other. The hastiness on the part of the examiner has at times led to insufficient attention being given to material interests of the person alleged to be insane. This is illustrated by the following case:

A man 82 years old was admitted this summer, who had been married about two years. It appears that a short time prior to his marriage he advertised for a girl to keep house for him. A woman, aged about 60 years, called, but when told he would only pay \$15.00 a month she left, refusing to take the place unless she was paid \$35.00. After some days she returned and accepted the place at \$15.00. He claimed that she, about two months afterwards, suggested that they be married, and they were, and it was not long before she prevailed upon him to deed to her his house and lot, worth \$3000. After a time his wife brought her sister to live with them, and in the commitment paper it was stated that he had repeatedly struck his wife and her sister, and threatened them with a revolver, that he raved incoherently on all matters, used vile and profane language at all times in an incoherent manner, that he made use of all parts of the house for a toilet, and that he had been addicted to liquor for two years. The patient has now had parole of the grounds several months, has from the day of admission been extremely cleanly in habits, quiet, orderly, and good natured, and given no trouble whatever. He gives no evidence of alcoholism, and claims that he has not been drinking. He says he has had a revolver for years, but has never carried it, or threatened to harm anybody. He claims that his wife took charge of his bank book with deposits of about two thousand dollars, and when he objected to her sister living with them had him arrested.

A reform of the examination in lunacy would require not only more scientific work or more expert knowledge in psychiatry, but a more earnest endeavor to get reliable data, a more careful scrutiny of the information submitted before accepting the reported behavior of the alleged insane as facts, and a more searching inquiry into details. If the examiner in lunacy would remember that he is, in a way, acting as prosecuting attorney, as well as jury, in bringing facts together and summing them up, before giving his diagnosis and advice to the presiding judge, and would realize the responsibility he is assuming in depriving an individual of his liberty and adding a confinement in an insane asylum to the life history of such individual, he would do his work more conscientiously.

It is not an uncommon occurrence to find essential facts in the history of the case carelessly and incorrectly reported in the commitment paper, facts upon which the decision to commit is largely based. (Even the name of the patient is often misspelled.) If the history of the case were carefully ferreted out, as many witnesses being examined as the particular case might require, and their testimony dictated to a stenographer, the information would not only be a great assistance to a correct understanding of the case after its admission to the hospital, but the extra expense would probably lead to a saving of further outlay by the state in unnecessary commitments in cases of delirium tremens or questionable insanity. The former land in the asylum with no means infrequently (20-25% of the alcoholic cases received at Stockton have been cases of delirium tremens), and cases of "not insane" are now and again met

with. We had one such in (I) June, and two in (II) August, of this year, which would not have been committed if the medical work had been done more carefully. One of the August patients was a pitiful case of delirium, caused by a cysto-pyelonephritis, which terminated fatally after three weeks. A case of "not insane," received (III) last January, died 25 hours after admission from pneumonia; another case admitted (IV) last month died in 27 hours, also from pneumonia.

The cases above referred to are as follows:

I. The June case was a patient who appeared to suffer from a spastic spinal paralysis, the previous history of which was very vague. The commitment stated that he showed undue excitement in ordinary conversation; attempted to kill one of the attendants of the hospital; that he was noisy, violent, dangerous, and excited at times; that he had ideas of persecution and the unreasonable belief that his feet were "frosted." The patient has been on parol since his admission, and aside from a certain irritability accompanying his nervous disease, has shown no symptoms of insanity. Symptoms of vasomotor disturbance in the extremities are present. When he says they are "frozen" or "frosted" he seems to imply that they are "cold." (He speaks a broken English.) He says he was working in the laundry of the county hospital, and the "boss" would not give him shoes, his feet were constantly getting wet, and in hot water, and that made his feet "froze" (cold). They wouldn't give him any tobacco, and only cotton stockings, which made him angry, and led to a scuffle preceding his arrest and commitment to the asylum. He has been discharged from the books for about two months, but is still staying at the hospital to get the benefit of massage, electricity, etc.

II. The pyelonephritis occurred in a man aged 45 years, in whose family there was no history of neuropathy. He had never before been committed or arrested; there was no history of addiction to liquor or narcotics. He had never been sick until about a month or two before admission; the history during this interval being very vague. The only information in the commitment paper relative to the psychic state was "that he talks irrationally; contradicts every one; imagines wolves infest the vicinity of his place; imagines he has wealth, when he has none; has imagined infidelity, but now denies it; differs with others on all matters." On admission he was found very quiet, orderly, perfectly lucid. No evidence of insanity could be elicited. He denied that as far as he knew he had spoken of great wealth, or of finding lumps of gold; said that he had been advised to sleep out doors, and was, while there, much disturbed in the night by sheep kept in the neighborhood. He thought coyotes were around, which he claims they had been at times. As far as could be judged, he had been delirious from the physical disease present. His feet were found oedematous on admission, and the urine contained pus. During the three weeks he lived at the receiving hospital he showed no evidence of insanity, being delirious only a day or two before he died, when the temperature was very high.

III. The January case was a man of 56 years, who when admitted was in a state of collapse, coughing and expectorating a purulent sputum, with marked dullness over lower part of left lung, tubal respiration, and numerous coarse and fine rales. His temperature was subnormal, and he seemed too weak to answer questions. He gradually became unconscious, and died after 25 hours.

IV. The November case was 66 years old. The commitment paper gave no family or personal history of the case, except that the patient was known to have taken liquor to excess years ago. His pulse was 120 and very weak when admitted; he swallowed

with difficulty; respiration 32; subnormal temperature (96.4 Ax.). Dullness was detected over the base of the right lung, with bronchial breathing. Rales were heard over both lungs. He seemed too weak to talk, and was semi-conscious when first seen. The complaint in the commitment paper stated "that he imagines that people are talking about him and plotting against him; that he talks and acts irrationally, and does not recognize people." He died the day after he was received at the asylum.

It is, of course, possible that the testimony against a person alleged to be insane could, under certain conditions, lead to his commitment under the supposition that a form of insanity exists, when in fact the man is sane, or the disease has already run its course, as in a case of delirium tremens, but errors in medical diagnosis where the alcoholic delirium is at its height, or where a delirium attending a physical disease is present, should not be made, and the only way of preventing these mistakes is by instituting more painstaking work in the examination, and by raising the standard of knowledge in psychiatry required of the medical examiner in lunacy. The latter can only be accomplished in time by an advancement of the teaching of scientific psychiatry at our medical colleges. This branch of medical science has, up to the present time, been given very little attention at the medical schools on this coast, or, in fact, with very few exceptions, anywhere in the United States. It might perhaps be possible to insure a higher grade of work by the examiners in lunacy at the larger county seats if an office of county physician were created, the duties of which should be, as in many countries in Europe, to superintend all inquests, make the examinations in lunacy, act as medico-legal expert for the courts, and attend to matters of hygiene. If all these duties were combined, they would command such salary as would make it worth while for one or two specially qualified physicians to devote their time exclusively to the office.

During the first half of the fiscal year, July 1, 1909, to June 30, 1910, 18.4% of the male patients admitted to my department were alcoholics; during the second half, 16.21% were alcoholics. Since July 1st this year the percentage has been higher than ever; in July, 8 out of 33 men, in August, 10 out of 26, and in September, 8 out of 31 were alcoholics, which for the three months is 26 out of 90, or 28.88%. When alcoholics constitute one-fourth of all the men sent to an institution for insane, it becomes a question whether it pays the state to care for so large a number at a hospital for insane. The alcoholic has always been considered a nuisance at an asylum, where as much liberty as possible is extended to inmates, because alcoholics are more or less quickly restored to a mental state approaching the norm, and therefore have a just claim for more liberty than the average convalescent mental case. The influence of alcoholics upon the other inmates is not the best, but above all they themselves do not receive at the asylums the social surroundings and the opportunities for re-education extended to them at homes for inebriates. To keep convalescents from delirium tremens, or from the subacute forms of alcoholism, for months at an insane asylum, simply gives them a place of detention where they have

no opportunity to get liquor, that is all (and not even always that, as they sometimes, on passes to town, as far as the Stockton hospital is concerned, get opportunities to imbibe at saloons). California is at the present time almost overburdened with the care of its insane, so that it may not be possible for the next legislature to grant appropriations for the needed State Homes for Inebriates, but I would rather see the solving of the problem postponed, however necessary such an institution may be, for two years or more, until a hospital can be established by itself near the center of population (i. e., about San Francisco bay and near Los Angeles), than to economize by building cottages for inebriates as an annex to two of the existing insane asylums (Napa and Patton), as has recently been proposed, where it would be difficult to prevent contact between the insane and the alcoholic, and where it likewise would be difficult to give the latter the social surroundings and re-education which his particular case requires.

The state hospital receives a great many old men, many of them former inmates of county hospitals and almshouses in various parts of the state. Some of these old men are childish, perhaps filthy in habits, and are said to wander off. The county hospital authorities say they can't keep them unless they shut them up, but that is just what the asylum authorities likewise have to do in most cases. In April of this year we received five men between 75 and 84 years of age. In February one case of senility was 92 years old. There are, of course, cases of insanity in old age which require institutional care, but aside from the fact that it is often difficult to give cases of mild enfeeblement of old age the proper surroundings in an asylum, it would not seem to be what is justly due the aged to place a case of harmless senility among the insane during the last years of his life. I have not infrequently seen old men in the asylum who, without any great difficulty, could be well taken care of by their families. I wish to emphasize that I am speaking of mild enfeeblement of old age, or men in their dotage, and not of maniacal cases of old age. To keep these latter in county hospitals would be to return to county-care of the insane, which has never been in vogue in California, and would be a deplorable backward step.

It is of importance to a case of insanity when it first makes its appearance that it be sent to a hospital as early as possible, not only so as to give it every chance to get well by placing it in proper surroundings and care, but also so as to protect it against itself in case of suicidal or self-mutilating inclinations, as well as to prevent violence toward others. While this should be given due consideration, it should at the same time be the work of the examiner in lunacy to keep cases from being committed who do not really require commitment. This task is a difficult one, if the community and the individual are to be properly protected without forgetting to have proper regard for unnecessary expense to the state. The better educated the medical examiner is in the line of psychiatry, the better he can properly serve the state. When I review in my mind the different cases which from time to time



have been admitted to the state hospital, I can not but feel that proper scrutiny with consideration for economy has not been exercised in some cases, and it occurs to me not only that more and better medical work should be done, but that greater difficulty should perhaps be placed in the way of committing a person to an insane asylum; repeating that this must be done without losing sight of the importance of having the legal requirements allow for the commitment of acute cases as early as possible.

Much has been done during the past fourteen years in some counties to improve the cleanliness of places of detention for persons alleged to be insane. The patients coming from San Francisco are, for instance, always free from vermin and cleanly as regards clothing, but in a number of counties this is not the case. In July, this year, we received three patients in succession from one county; they were all full of vermin. Five out of 33 men received during July had pediculi in their clothes, or on their person. In September three cases were infested with vermin. Pediculosis has on an average been present in 2 to 3 cases a month. Many patients are received who are dirty in person and clothes, exclusive of the cases who are filthy by reason of the mental state present. In many counties the jail is still the detention hospital, and the patients are frequently made to commingle with the prisoners, as drunks and criminals of all kinds, among whom it often comes to fights, the patients after admission showing results of encounters in the form of bruises and scratches. I have seen instances where the patient dressed in good clothes had got them infested with vermin by contact for only a day or two with tramps or other prisoners in the jail. During their stay in jail they receive very little if any medical attendance.

In my address before the Northern District Medical Society in 1896 I say that "the transfer of the person declared to be insane from the court or jail to the insane asylum is managed by the sheriff or his deputy without the advice of a medical man acquainted with the nature of insanity and the ways of the insane. It is a common thing for the sheriff's officer to deceive the insane as to their destination. . . . The question of the necessity of restraint is left entirely to the sheriff, and he is frequently too ready to put it on . . ." This is still true today. It is a common experience to find that the new arrival has been told by the deputy sheriff that he would only stay in the hospital a short time, or that he would be given privileges which can not be granted him; and it is likewise often found that a patient restrained with handcuffs and anklets on the way to the asylum is found to be quiet and harmless when he arrives in the ward. It is of course true that the escort must be very careful to protect a patient against himself and others while en route; at the same time if the deputy sheriff had the knowledge and experience of a trained hospital nurse, he would be able to understand better when he can take certain risks with regard to omitting restraint, and in a general way how to afford various comforts to the patient he is escorting. Apropos of how sheriffs sometimes show a lack of consideration for the patient, it may be mentioned that we received a woman some sixty years old last month,

whose mental condition was not such as to require immediate transfer, who had traveled from midnight until 5:10 a. m., at which hour she was taken from the station to the institution. Are considerations of comfort not much more essential to a sick person, the insane, than they are to the person the deputy sheriff usually escorts, the criminal?

In my address of 1896 I say: "On account of the inexperience of sheriffs' officers and their ignorance in matters pertaining to the care of the insane, it has been regulated by law in the State of New York, that the superintendent of the state hospital shall be immediately notified of such commitment, and shall at once make provision (through a trained attendant), for the transfer of such insane person to such hospital."

This subject of the escorting of the insane from jail or detention hospital to asylum was taken up by several state senators during the session of the legislature in 1897, and a law was drafted in accordance with the above regulation in vogue in the State of New York. As soon, however, as the sheriffs heard of the bill, they banded themselves together, and used every influence until they had succeeded in killing it. Since then I have several times sounded the prospects of having such a bill become a law, but have each time found that efforts would be futile on account of the organized opposition. Now that reform is the watchword, and machine politics seem no longer to be the master of the situation, I am hoping that such an act can be passed. That this transfer is feasible, humane, and in every way apt to be a success, is attested to by the trial it has been given in New York State. I have a letter from Mr. T. E. McGarr, secretary of the State Commission in Lunacy of New York, dated October 5, 1910, in which he states: "The present procedure under which trained nurses from our state hospitals are detailed, upon notification from county authorities, to escort insane patients from their homes, or from temporary detention buildings, to these hospitals, has been in operation for 17 years in this State (New York), and with hardly an exception it has proved its great superiority over the preceding operation under which the local authorities assumed charge of patients en route to hospitals."

This procedure is not only more humane by giving the patient a more correct treatment en route in accordance with the particular circumstances of each case, but it is more economical. It is a fact that during my 21 years' experience as assistant physician at the Stockton asylum, I have not yet seen a case (man or woman) brought to the hospital from certain counties during the day. They are always brought in the evening, so that the deputy sheriff can not return the same day, and therefore charges his per diem for two days for himself and his assistant, when he has one, which is usually the case. This amounts to a large sum in the course of the year. If the hospital nurses had acted as escorts they would have done it in one day, and in most cases would not have needed an assistant where two deputy sheriffs were detailed for the work, nor would the nurses sent out from the hospital require a carriage from the depot to the Stockton hospital

at \$1.50 or \$2.00, as the deputy sheriffs usually charge to the state, and possibly other incidental expenses might be done away with. In view of the demonstrated superiority of the transfer of the insane by hospital nurses, I appeal to the next governor and Legislature to pass an act by which this transfer may be taken out of the hands of the sheriffs. If the transfer is to be done by nurses from the different hospitals, it may be necessary to district the state, as has been done in New York (paragraph 12, N. Y. Ins. Law), so that each hospital receives its inmates from certain counties only, which would at the same time prevent overcrowding of any one hospital. The Stockton and Patton hospitals, for instance, have on an average received more patients than Ukiah, Napa or Agnews (before the earthquake).

But not only are the sheriffs not the proper persons to serve as escorts for the insane on the way to the state hospitals, but the police and constables are frequently unqualified to take charge of the alleged insane. Sometimes they use force where this is not required, at other times they are too uninformed to be able to give proper attention to the true interests of the patient. Last month we received a delirium tremens case, who, after his arrival in the state hospital (at which time he appeared to have recovered from the delirium), described how he met a policeman in the street, whom he asked if he had seen the horse and wagon on which signs, etc., were being carted away from in front of certain stores, at the same time suggesting to the policeman to arrest them. The policeman said he couldn't see any horse and wagon, but he invited the man into a saloon to take a drink. He took a cigar himself and left the saloon. About ten minutes afterwards, when the delirium tremens case showed himself on the street, he was promptly arrested by the same policeman.

In order to give better service to the alleged insane, the State of New York has passed a law, which went into effect on the first of October, this year, delegating the apprehension and care of the insane pending commitment to local health officers. Paragraph 88 of the N. Y. Ins. Law reads: "The health officers of towns, villages and cities, etc., . . . shall cause application to be made to a judge of a court . . . of the county . . . who upon being satisfied, etc., . . . shall issue a precept to one or more of the officers named (county health officers), commanding him to apprehend and confine such insane person . . . and such officers in apprehending such insane person shall possess all the powers of a peace officer executing a warrant of arrest in a criminal proceeding . . . nor shall such person be committed as a disorderly person to any prison, jail or lock-up for criminals." This is an important change in procedure, making the apprehension of the alleged insane a matter of public and individual health, and not one of criminal offense.

In conclusion, I wish to speak of the prevalence of insanity with regard to sex, which is quite unusual, especially in some parts of this state, and which might show up differently if the above reforms were instituted. In older communities insanity has been

about equally prevalent among men and women; in some it has been even more frequently met with in women, but in California the reverse has so far been the case. In the Stockton hospital there are at the present time about twice as many inmates in the male department as in the female, and admissions have in the past been on an average of two men for every woman. During the last three months, from September 1st to December 1st, however, the predominance of men has been on the increase to such an extent that only 22 patients out of a total of 116 have been women, which is equal to an admission of over 81% of men. This is so unusual a preponderance of men as to be explainable only by the greater prevalence of alcoholism among the men, and their perhaps greater fight for existence, but especially, I think, by a lack of sympathy for and patience with men on the part of their surroundings, from the children of an aged father to the peace officer looking after the behavior of men in public.

To sum up the evils which are confronting us in connection with the apprehension, detention and commitment of the alleged insane, and their transfer to state institutions:

(1) They, as sick people, are not understandingly looked after by the police or constables at the time of their arrest.

(2) They are still in some quarters kept in unsanitary places of detention (jails), in which they are given little if any medical attention, which places are now and then infested with vermin. They are not kept clean while there, nor as a rule furnished with clean clothes when they leave.

(3) They are not given as thorough an examination prior to and at the time of their commitment in court as many of the cases require, the special qualifications of the examiners in lunacy being much below par, a matter, however, which time and proper teaching of psychiatry in the medical schools only can rectify.

(4) They are escorted by men who are accustomed to take care of criminals, but unqualified as nurses to look after this particular class of sick people, and who are doing this in a very uneconomical way.

# THE MUNICIPAL REFUSE DISPOSAL PROBLEM WITH SPECIAL REFERENCE TO ALAMEDA COUNTY CONDITIONS.\*

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## Elements of Problem.

The municipal wastes problem is inherently divided into two very important and more or less independent parts, namely, collection and disposal.

So far as the individual householder is concerned, the refuse problem is solved completely and satisfactorily if the collection is regular, sufficiently frequent and of low or moderate cost; but for the community as a whole, satisfaction is only possible when both elements of the problem are successfully handled.

\* Read before the Alameda County Medical Society, January, 1911.



Each of these elements constitutes a large and sometimes troublesome problem. Of the two, however, it may be said that the disposal problem is the more difficult and requires the more painstaking and technical consideration. In view of the necessary brevity of the present paper, it is deemed wise, if not absolutely essential, that the discussion be confined strictly to the refuse disposal problem.

It might be said in passing that the refuse collection problem in the larger communities of Alameda County is not very different from that in other places of like size and density, except in so far as it is affected by climatic conditions. These are remarkably favorable both as regards temperature and precipitation. Our very equable climate with its low summer temperature permits weekly collections without nuisance whereas in warmer climates much more frequent collections are necessary.

There can be no question but that the best interests of a community are served when the cost of collection is met by the community as a whole, assessments being made with a sliding scale of rates according to the size of family served or the amount of refuse produced. Such a scheme removes the temptation to dispose of garbage and other refuse on vacant lots and thus avoid the cost of collection, which in this territory amounts to about \$6.00 per annum per family.

#### *Refuse or Wastes Disposal.*

In presenting comprehensively the wastes problem, it is perhaps most rational to discuss: 1st, the classes and types of refuse which the ordinary community produces; 2nd, how each of these classes of materials may be disposed of, both independently and collectively.

The refuse of American communities can be divided into six distinct classes, as follows:

- (1) Garbage, proper, comprising the wastes from domestic, hotel and restaurant kitchens, from meat, fish, vegetable and fruit markets, etc.
- (2) Rubbish, consisting of rags, paper, pasteboard, leather, rubber, excelsior, straw, wood, pottery, glass, metals, etc., etc.
- (3) Ashes, from both household and industrial stoves and furnaces.
- (4) Street sweepings, consisting mainly of horse droppings mixed with more or less sand, dust, etc.
- (5) Dead animals.
- (6) Night soil and cesspool refuse.

(1) Garbage. The term "garbage" is often employed to designate all municipal refuse of the several classes outlined above with the exception, perhaps, of the last two items. Strictly and properly speaking, however, the word garbage should be restricted to mean simply the refuse from kitchens and from meat, fish, vegetable and fruit markets, etc.

It is highly putrescible and decomposes rapidly in hot weather, giving rise to disagreeable odors. The average composition of American garbage is said to be about as follows: moisture, 70%; grease and oil, 3%; animal and vegetable matters, 20%; rubbish (tin cans, berry baskets, bottles and the like), 7%. These various constituents may vary considerably in dif-

ferent communities and at different seasons of the year. Under certain circumstances garbage may be a carrier of disease germs; but it is believed that its greatest sanitary significance lies in its putrescibility and odor producing capacity.

There are at least six ways in which garbage may be disposed of, either independently or in conjunction with other refuse. These are:

- (a) Feeding to swine.
- (b) Dumping on land.
- (c) Burying in land.
- (d) Dumping into water.
- (e) Reduction and extraction of grease.
- (f) Cremation or incineration.

The garbage of many places in the United States, especially of the smaller communities occupying isolated positions, is disposed of by feeding to swine. In some cases, and under certain conditions, this must be recognized as a fairly successful proceeding. It is naturally adapted to public and private institutions of various sorts where the character of the refuse can be controlled and where it can be disposed of before putrefaction sets in. For the larger places in Alameda County it is believed that such a method of garbage disposal is wholly unsuitable.

Dumping on land, without burying, is rarely to be commended and can seldom be resorted to without producing a nuisance, both from a sanitary and an aesthetic point of view, and this nuisance may continue over a very long period of time. Such a method of disposal cannot be considered under local conditions.

The burying of garbage on land, or in other words, its use as a fertilizer, can be accomplished if the land is available and if suitable care is exercised. Under local conditions, such method of disposal would appear to be quite impracticable for the larger communities in the county.

Dumping garbage into large bodies of water is thoroughly practicable if points of dumping can be chosen so that no subsequent stranding of particles on inhabited shores can take place. This method is seldom practised for garbage alone, and will be discussed at greater length in connection with the disposal of mixed municipal refuse. Under local conditions, the available point of disposal by dumping is in the Pacific Ocean at a considerable distance from the general shore line and west of the Golden Gate.

In recent years it has frequently been attempted, as a commercial proposition, to extract the oil and grease from American garbages. The process is called "reduction" and consists in removing the oil and grease by digestion or extraction, leaving a tankage which is quite suitable for use as a filler or base for high-class fertilizers. The process has never been made to yield a net profit, including the cost of collection and delivery to the plant, and to-day this method is not viewed with as much favor as it was a few years ago. It is more expensive than other available methods and, moreover, treats only one element of municipal refuse. Under local conditions it is doubtful if this process can be considered an available method.

The cremation or incineration of garbage is seldom, if ever, attempted independently. For reasons

that will appear later, cremation is best accomplished with a mixed municipal refuse and this process will be discussed in connection therewith.

(2) Rubbish. As outlined above, rubbish consists of rags, paper, pasteboard, leather, rubber, excelsior, straw, wood, pottery, glass, metals, etc., etc. Much of this material is combustible: in fact, has a considerable calorific value. Its chief sanitary significance lies in the fact that the rags and cast-off clothing, etc., may carry disease germs. Its odor is not offensive and this class of materials does not decompose rapidly under ordinary conditions.

Rubbish may be disposed of in the following ways:

- (a) By dumping on land.
- (b) By dumping at sea or in other sufficiently large and suitable bodies of water.
- (c) By cremation or incineration.

Rubbish heaps, from an aesthetic point of view, are certainly not to be encouraged. It is doubtful, however, if diseases can ordinarily be directly traced to them. Under certain conditions the disposal of rubbish by dumping on land is permissible, but the practice should be carefully regulated to prevent picking over and unsightly appearance. It is believed that local conditions do not permit rubbish to be disposed of with propriety in this way.

The dumping of rubbish in large bodies of water is seldom, if ever, practiced independently and therefore this method of disposal will be discussed in connection with the disposal of mixed refuse. When so disposed of, its chief objection lies in the fact that some of its component parts are very buoyant and will float upon the surface of the water for a very long time.

As stated above, much of the material comprising this class of refuse is combustible and has considerable fuel value. It is therefore possible to dispose of such materials by incineration, the heat produced being utilized to make steam which in turn is used for power purposes, such as electric lighting, pumping, etc. In communities where the garbage is disposed of independently, incineration of the rubbish, independently, is a logical procedure. Otherwise, it is seldom of advantage to dispose of the rubbish separately and this situation is believed to obtain with respect to the larger communities in Alameda County.

(3) Ashes. The term ashes is self-explanatory. It is applied, of course, to the unburned material from household stoves and furnaces and from industrial furnaces and grates.

The general use of gas, distillate and fuel oil, all of which leave no refuse, both in households and in industrial establishments in Alameda County, renders ashes an inconsiderable and almost insignificant item of local municipal refuse. The principal significance of ashes lies in the fact that they are very dusty, and when mixed with other refuse, especially garbage, they tend to dry it and retard decomposition. It is believed that the local ashes contain very little combustible material, say from 3% to 5%, which is very small as compared with the 20% to 40% found in the ashes of communities in north-eastern United States. Moreover, the weight of ash in our local refuse is so small as compared with the total weight that it becomes a very unimportant ele-

ment or factor. When the ashes are very fine and constitute a considerable proportion of mixed refuse, they are likely to interfere seriously with the draft in refuse incinerators.

Clean ashes, free from other refuse, may be disposed of satisfactorily in the following ways:

- (a) As filler on low land.
- (b) As an ingredient for mortar.
- (c) As road material.
- (d) As material for lightening heavy soils.
- (e) By dumping in large bodies of water.
- (f) By incineration.

It is locally impracticable to dispose of any large and uniform quantity of ashes as an ingredient in mortar. Ashes from bituminous coals are not generally useful for road materials although in some cases ashes resulting from the burning of anthracite coals may be used with advantage. All ashes are suitable for lightening heavy clay or adobe soils, and may properly be used for filling in low lands. They are seldom, if ever, disposed of independently by dumping in water or by incineration. Under local conditions it is believed that ashes contain too little combustible to render them suitable for mixing with other refuse which is to be disposed of by incineration and that the most logical and available methods of disposal are as filling on low land and for lightening heavy soils.

(4) Street Sweepings. Street sweepings from paved districts contain material having a high fertilizing value, but sweepings from unpaved streets may, and generally do, consist largely of mineral matter, soil, etc. Their chief significance lies in their inherently dusty character, their putrescibility and their fertilizing value.

Street sweepings may be disposed of as follows:

- (a) By dumping on land.
- (b) By spreading or burying in land.
- (c) By dumping in water.
- (d) By cremation or incineration.

Unless the street sweepings contain a great deal of inorganic and mineral matter from unpaved streets they should not be disposed of as filling upon land. When high in organic matter, they may well be disposed of by burying or spreading upon land as a fertilizer. The street sweepings from the paved districts of San Francisco, for instance, are first composted and then used to fertilize the gardens in Golden Gate Park. Dumping in water and incineration are never practised on street sweepings independently but only when these materials are mixed with other municipal refuse.

(5) Dead Animals. The dead animals of the city may be disposed of by:

- (a) Incineration.
- (b) "Rendering," so-called.

Incinerators are seldom, if ever, installed for disposing of dead animals only but when properly constructed for treating mixed refuse, dead animals, even of the larger sorts, may be readily cremated therein.

In most communities rendering establishments, so-called, are to be found. In these all parts of the animal are utilized. The skins are tanned, the hair is saved, the hoofs and horns are turned into gela-



tine, the bones are cleaned and scraped to be used in various ways, and the blood and flesh are boiled and made into fertilizer. Such establishments are operated by private parties and their processes are subject to Board of Health regulations.

(6) Night Soil and Cesspool Refuse. With the general extension of sewerage systems in towns, the use of cesspools and privies is being abandoned and the wastes from these places are rapidly being eliminated. Such wastes, when they exist, may be disposed of as follows:

- (a) By burying in land.
- (b) By incineration.

Burying in land may be resorted to when incinerating plants for general municipal refuse are not available and when such lands are not used for raising vegetables which are eaten raw. It is believed that the problem of disposing of such wastes does not exist in the larger communities of Alameda County. It does exist in the smaller communities.

(7) Disposal of Mixed Refuse. Possible Methods. A review of the preceding discussion shows, 1st, that the conditions existing in the larger communities of Alameda County—namely, the cities of Alameda, Berkeley and Oakland—demand that a mixed refuse be treated and, 2nd, that there are only two methods apparently available for the disposal of such materials, when viewed from sanitary and aesthetic standpoints. These methods are:

- (a) Dumping at sea.
- (b) Incineration.

(a) Dumping at Sea. The conditions in San Francisco Bay are such that municipal refuse cannot be disposed of therein; but in the Pacific Ocean, within what may perhaps be a reasonable distance from shore, it is believed that it may be found practicable to dispose of considerable quantities of mixed refuse. An absolutely essential requirement of such a scheme of disposal is that there shall be no stranding of particles on inhabited or utilizable shores. The possibilities of such a method of disposal may readily be determined by trial and experience. The distance from shore, condition of tides, direction of currents and direction and velocity of winds are all important factors governing the selection of a point of dumping and determining the efficiency of diffusion and the probability of stranding on shores.

At the present time the cities of Oakland, Berkeley and Piedmont are jointly disposing of mixed general municipal refuse by dumping at sea at a point nominally located a short distance from the Farallones and between these islands and the San Francisco light vessel. The refuse is carried by a sea-going steam schooner arranged with more or less temporary, self-dumping bins having a capacity of 500 cubic yards or perhaps 400 tons of ordinary refuse. Trips to the dumping ground are made every other day.

Whether or not the refuse is invariably dumped at the stated point is not known to the writer. At any rate it appears that the point or points of dumping now being utilized are not altogether satisfactory from the standpoint outlined above and some decided objections are being raised against this scheme of disposal by residents of Marin County

who claim that considerable quantities of refuse become stranded upon their shores. It appears that these complaints are fairly well founded, but from statements made by Oakland officials who have examined into this matter, it would seem that this result is not a necessary consequence of the method of disposal in question. It may simply be due to the fact that occasionally the vessel does not reach the prescribed dumping ground; or it may be that the dumping limits have not been set sufficiently distant from the shore. Without question the method, at least as an expedient for a considerable period in the future, is worthy of careful study and experiment. It ought not to be a difficult matter to determine the minimum distance within which no appreciable degree of stranding and consequent contamination of shores will occur. A feature which must be carefully reckoned with in determining the feasibility and correctness of this method of disposal, judged by sanitary and aesthetic standards, is the trade wind which blows so steadily shoreward during continued periods in the warmer season of the year when the beaches are most used by pleasure seekers. Investigations made by the Metropolitan Sewerage Commission of New York, in 1905, showed that the effect of wind was most potent in driving floating refuse (New York mixed refuse) before it over the surface of the ocean.

Under certain conditions refuse may be carried in the sea through very long distances by winds and currents. The refuse from the City of New York, for instance, when dumped at sea off Sandy Hook, was found to strand on the New Jersey shore fully 75 miles from the point of dumping and on the south shore of Long Island fully 50 miles from this place.

Under the present arrangement, the refuse of Berkeley is hauled by teams an excessively long distance. Yet it is doubtful if, under existing conditions, it would be of economic advantage to the City of Berkeley to dispose of its refuse at sea, shipped independently in a vessel loaded at the city wharf. Eventually, if this scheme of disposal should prove to be suitable both as regards efficiency and cost, independent disposal will probably be found advisable. It might be possible, for the present, to construct self-dumping hoppers at the town wharf and to load Berkeley refuse on to the vessel at this point. If this could be done, a considerable saving to the scavengers would be effected.

(b) Incineration. It is entirely possible to design, construct and operate refuse incinerators with thorough-going success on mixed municipal refuse. The majority of furnaces constructed in America have not, however, been successful, either in point of cost of operation or of efficiency of disposal. This unfortunate condition is largely due to the fact that the designs have been based upon faulty principles and have not been made by trained engineers experienced in this line of work. Recently, both in England and America, some very successful plants have been constructed under suitable engineering advice. Such incinerator plants are not unduly expensive in first cost or in operation and the refuse is disposed of in wholly sanitary fashion without creating foul odors, smoke or dust. In a few cases, incinerators

have been located in the heart of commercial and business districts and have not been offensive. It is quite possible to design incinerators of attractive and pleasing architectural appearance; but it must be admitted that the majority of incinerators thus far constructed in America have been anything but beautiful. A discussion of the features of proper design of such plants is deemed to be without the scope of this paper.

Final Decision as to Method. Data are now available whereby the total and net cost of disposal of refuse by dumping at sea and by incineration can be fairly closely determined, both for the present and for the more or less distant future. These estimates should be carefully made in terms of total necessary investment and capitalized annual charges and in terms of costs per ton. Such a study of costs should be made before any of the communities in question commits itself definitely and permanently to either scheme of disposal. It is apparent that disposal at sea will not be an ultimately available method if the distance to which the refuse must be carried, in order to insure the protection of shores, should be so great as to represent a greater total cost than that incurred by disposal by incineration.

#### DISEASES OF DOMESTICATED ANIMALS AFFECTING THE PUBLIC HEALTH IN ALAMEDA COUNTY.\*

By C. M. HARING, D. V. M., Berkeley.

This paper is to be divided into two parts: the first to deal with specific infectious diseases of animals that are directly transmissible to man; the second part to deal with diseases of domesticated animals which are of importance from a public health standpoint, but which are not directly transmissible to man. An example of the first class is glanders in horses; an example of the second class is mastitis or inflammation of the udder in dairy cows.

*Glanders.* This is primarily a disease of horses and mules, and is one of the most widely distributed diseases of animals. It exists in nearly all the countries of the world, and in this state is a menace to the horse and mule industry. It is of much significance in this city. During the past two years, more or less systematic efforts have been made by the State Veterinarian to eradicate this infection. Some conception of the prevalence of this disease in California can be gathered from the reports of animals destroyed by various county live stock inspectors and by the state veterinarian. In all, 1991 animals have been examined and tested with mallein, 802 of which were destroyed because they reacted to the test, and 409 were destroyed without test because they showed clinical symptoms of the disease. In Alameda County, twenty-seven animals have been destroyed without test, because when recog-

nized they were in such an advanced stage of the disease that it was evident they were infected with glanders; 158 were tested with mallein on suspicion, 104 of these passed the test, 9 were held for re-test, and 44 were destroyed. In the past two years the value of horses and mules killed for glanders in Alameda County, computing their value at \$100 per head, which is a low estimate, was approximately \$7,000. Computing the loss in the entire state, the amount was \$70,000.

Although glanders seldom occurs in man, it is a disease which is quite generally feared, because in the human it assumes a terrible and rapidly fatal form. It is proper in this paper to mention the most approved methods for its control. Of course, the recognition and destruction of all cases of glanders is the most important measure. Although the clinical symptom of the disease, such as ulcers on the Schneiderian membrane, and "Farcy Buds" in the lymph-nodes of the limbs, are very noticeable, a large proportion of infected horses have an occult form of the disease. These are the cases in which lesions are confined to the internal organs, especially the lungs. It is here that the difficult part of the control of the disease is presented. After testing a number of animals with which a clinical case of glanders has been in contact, we invariably find one or more which react to the mallein test. In many instances these animals appear to be from all external appearances just as healthy as those which passed the test, and it is difficult at times to convince the owner that they are also infected with glanders. Still if these are allowed to live, and constantly come in contact with healthy animals, they are capable of spreading the infection. On account of the opposition of horse owners to the measures necessary to eradicate infected animals from their stables, it is difficult to make much headway against the spread of the disease. The State Veterinarian of California, in his fifth biennial report, advocates an appropriation to reimburse the owners in part for the value of destroyed horses. If this could be done many more cases of glanders would be reported to the sanitary authorities by the owners, instead of being kept hidden, as now happens in many instances.

The abolition of the public watering-trough has been advocated as a means of preventing the spread of this and other diseases of horses. There can be little doubt but what the public watering-trough is a cause of more sickness among horses than is the use of the public drinking cup in diseases of humans. The establishment for horses of public drinking fountains which are under the supervision of some organization that provides for their frequent cleansing and disinfection, is a step in the right direction.

\* Read before the Alameda County Medical Society, January 17, 1911.



*Other Diseases of Horses.* Glanders is the only disease of horses in Alameda County which is a direct danger to humans. There are several infectious diseases which are transmissible to horses as well as to man, for instance, Anthrax. Influenza and contagious "pink eye" of horses have been stated to be a cause of similar diseases in man, but in the opinion of the writer it remains to be proven that these diseases are transmissible to humans. Recently we have received several letters of inquiry concerning anterior poliomyelitis in animals. In the fall of 1909 I visited the State Hygienic Laboratory of Minnesota. Dr. M. H. Hill was at that time investigating some outbreaks of this disease in that state, and he reported a history of the occurrence of paralysis in young domestic animals in communities where cases of infantile paralysis had occurred. I do not know of any cases in animals which I can suspect of being this disease. It is probable that the same thing is occurring now as happened a number of years ago before the discovery of Klebs-Loeffer Bacillus, the specific cause of diphtheria. Formerly, many physicians believed that avian diphtheria, or roup, was identical with diphtheria in human beings, but the discovery of the specific etiological factor, *B. diphtheriae*, proved that to be a fallacy. The fact that paralysis of domestic animals occasionally occurs in localities where there are cases of anterior poliomyelitis is not a good reason for believing that this latter disease also occurs in domestic animals.

*Rabies.* In the fall of 1909 reports were received at the State Hygienic Laboratory of rabies in Southern California. Heads of some of the suspected dogs were later received, and the disease proved to be rabies. Since that time several hundred cases have been reported. So far as I know, this is the first epidemic of the disease that has occurred in California. The disease has found its way to Central California, several cases being reported from Stockton, some of which have been verified by laboratory diagnosis. One case of proven rabies has occurred in Contra Costa County, and it is probable that in the near future cases of the disease will occur in the Bay Cities.

As rabies, under natural conditions, is only transmitted to man by the bite of infected dogs, the control of the disease rests almost entirely upon ordinances requiring the muzzling of all dogs which are not confined to the premises of their owners. Among other measures which might be mentioned are the destruction of all ownerless dogs and the licensing of all dogs. The Pasteur treatment has been made so effective and inexpensive as compared with former times that, when desired, animals bitten by rabid dogs may be treated.

*Tuberculosis in Cattle.* Of the diseases of cattle there is perhaps no other that causes as heavy losses as tuberculosis. This affection was known in very early times, but its means of spreading was very limited, owing to the small traffic in cattle. In the nineteenth century it has become, however, a source of great loss, largely because the people did not know its cause or how it was spread.

Bovine tuberculosis, while not characterized as an epidemic or epizootic disease, is estimated to affect ten per cent. of all dairy cattle. The post-mortem examination of the cattle slaughtered in the abattoirs of ten foreign countries furnish figures proving nearly eighteen per cent. to be tuberculous. Dr. A. D. Melvin, Chief of the U. S. Bureau of Animal Industry, estimates, on careful data, that tuberculosis of food-animals cost this country \$14,000,000 annually.

In order to determine the extent to which the disease has spread in this region I have collected and compiled the results of a number of tests made by Dr. A. R. Ward and myself during the last four years, but largely in 1907. Among 1,022 cows in twenty-two herds we have found 31.9 per cent. reacting. Eighty-two per cent. of the herds were found to contain infected animals. These figures are compiled only as results of whole herds tested for the first time, and do not include semi-annual tests of herds producing certified milk. Of seventy-one cows pastured on vacant lots in Berkeley eight per cent. reacted. These figures concerning the prevalence of tuberculosis were derived from results obtained largely in herds furnishing milk to the Bay Cities.

Sanitarians have recognized the danger of human infection from the consumption of milk from tuberculous cows, and the presence of much tuberculosis in pigs fed on such milk is a practical demonstration of the transmission of virus through this medium. The conclusion by many investigators is that from one to two per cent. of human tuberculosis, especially the glandular form, is of bovine origin. There is a large literature on this subject. The report of the British Royal Commission on tuberculosis, the proceedings of the Sixth International Congress on tuberculosis, and the reports of Dr. Wm. H. Park, Director of Research Laboratory of New York City Board of Health, are especially recommended for information on the transmission of bovine tuberculosis. Dr. Park, in a paper read before the Pathological Section of the National Association for the Study and Prevention of Tuberculosis, gives the following table of cases examined in his laboratory previous to May, 1910:

Ages of tuberculosis individuals.	% of		
	Human type.	Bovine type.	Bovine type.
Persons 16 years and older....	296	1	0.33
Persons from 5 to 16 years old...	45	9	16.66
Persons under 5 years of age...	62	22	26.19
Total .....	403	32	7.12

In a discussion of the paper, Dr. Welch of Johns Hopkins University pointed out that these were not cases especially picked to show that bovine types of tubercle bacilli may cause human tuberculosis.

*Anthrax.* Anthrax is another disease of dairy cows which sometimes occurs in Alameda County. It is usually confined to swampy land. I do not know of any cases occurring in this county during the past two years, although thousands of cattle die of anthrax every summer in the valleys. I know of the

occurrence of this disease three years ago in a dairy in another county which was shipping milk to Oakland. Several cows died, and one milker became infected with malignant pustules on the hands and arms. The State Veterinarian reports that during August and September, 1909, serious outbreaks of anthrax occurred among the cows in four dairies in Solano County. Two hundred and three cows died from this disease in these four dairies in the course of about two weeks.

Other diseases of animals which are directly transmissible to man and which occur in Alameda County are: actinomycosis, trichinosis, ringworm, and the tapeworms—*taenia solium*, and *taenia sagginatia*.

*Other Diseases of Domestic Animals.* Of the diseases of domestic animals of importance from the public health standpoint but which are not directly transmissible to man, I have already mentioned mammitis or garget in dairy cows, which is a frequent cause of pus in market milk. There is a good deal of pus in market milk, and it is to be regretted that the various methods of counting the leukocytes in milk have not proven reliable as a means of detecting its presence, because the milk from some healthy cows with normal udders contains as high as four hundred thousand leukocytes per cubic centimeter. The presence of streptococci in milk is not necessarily an indication of the presence of pus or other inflammatory products. These organisms are frequently inhabitants of the healthy udder, and form a part of its normal bacterial flora. Actual inspection of the cows by a competent and conscientious veterinarian is the only reliable safeguard.

From a meat inspection standpoint, septicemia, pyemia, hog cholera, and numerous other diseases, are of importance. A very objectionable disease from an aesthetic standpoint is caseous lymph adenitis of sheep. The characteristic abscesses of this infection are frequently imbedded in the muscle and are sometimes discovered only after a roast is placed on the table. When laid open by the carving-knife they are usually the cause of considerable alarm to the layman. Occasionally roasts of mutton containing these abscesses have been submitted to me for diagnosis.

We need more and better veterinarians in public health work. Oakland is especially fortunate in having a skilled man of high standing in this profession in its employ. As our knowledge of infectious disease, hygiene and sanitary science improves the true importance of animal diseases and their relation to the public health becomes more evident. The time is coming when this subject of comparative pathology will have its place in the curriculum of every Class A medical school. Harvard and Cornell have for several years had expert comparative pathologists on the faculty. In the past the standard of veterinary education has been so low that veterinary medicine was little better than a skilled trade, but men are now being graduated from our better veterinarian colleges who can command the respect of the medical profession and rank as specialists in comparative medicine and veterinary science.

College of Agriculture, Berkeley, California, 1911.

## NOTES ON SEWAGE DISPOSAL.\*

By C. E. GRUNSKY, Dr. Eng.  
Mem. Am. Soc. C. E.

Last April the speaker visited the sewage disposal works of Wilmersdorf, a suburb of Berlin. These were represented to be an up to date arrangement and proved to be well worthy of examination.

The day was mild, but cloudy and threatening rain. A moderately strong wind was blowing. On the two mile walk from the nearest railway station, the wind's course was crossed as it blew from the works. It came heavily laden with malodorous gases and the speaker's conviction was speedy and strong that no matter how clear and non-putrescible the effluent from such clarification works might be, the works would be inadequate to meet the requirements for or near any large American city.

At these works, which are known as "Klär-Anlagen," the sewage is received in a circular concrete tank from which it flows to open settling basins. Of these there are four acting on the principle of the septic tank. They are scum-covered and practically odorless except when the sludge is removed by being siphoned to nearby sludge beds. The effluent from the settling basins flows to a chamber, the outlet of which remains closed until the chamber is full, whereupon its overflow fills a bucket attached to a lever and opens the flow to the coke beds of which there are 28 at the works.

Each coke bed is a cylindrical pile of coke with sides practically vertical, about 60 feet in diameter, and about 7 feet high, in the center of which is a riser pipe connecting with two horizontal pipes that extend out to the edge of the coke pile. The horizontal pipes are supported from a central upright extension of the riser pipe by means of iron rods. They are perforated in such a way that the outflow of sewage is proportional to distance from the center toward the periphery of the bed and that this outflow imparts rotary motion to the two arms which swing about a foot above the top of the coke bed, revolving slowly for a few minutes while the bed is being dosed and then remaining at rest until another dose of sewage has accumulated.

The septic sewage thus sprinkled in the open on the coke beds is foul smelling and there seems to be no way in which septic sewage can be handled at such clarification works without giving rise to the bad odors that have long been recognized as one of the great drawbacks to any general application of the septic tank treatment of sewage.

The effluent from the coke beds is turbid, with an abundance of flocculent matter. It is allowed to flow into another set of four tanks, where most of the material in suspension drops to the bottom and the outflow is then ready for discharge into the river. This final effluent is by no means perfectly clear. It still carries some flocculent matter. It is non-putrescible and apparently quite up to the standard usually insisted upon in Germany that it must be at least as free from objectionable matter as the water of the stream into which it is discharged.

The visitor to these works is also shown a field a few acres in extent prepared for irrigation to

\* Read before the Alameda County Medical Association, January 17, 1911.



which the effluent can be led for application to land in case that this final treatment should be thought necessary. The soil being sandy there is no doubt that it would stand heavy dosing with either the present final effluent or with the effluent direct from the coke beds.

It is hardly necessary to state that the Wilmersdorf "clarification" works are well located, removed from the densely populated areas around Berlin far enough to be not obtrusively offensive. The works stand upon a low, flat-topped hill and are so arranged that the sewage which reaches the receiving tank flows by gravity to the settling basins, again by gravity to the coke beds and thence to the sediment basins and to the stream.

The sludge which accumulates in the basins is at intervals of some months drawn from sumps in the bottom thereof by a siphon and is delivered upon sludge beds which are leveled-off areas of land surrounded by low embankments. The sludge is slow drying, foul smelling and has some manurial value. It is shoveled into handcarts when dry enough and there is some demand for it by farmers.

Since noting the above the speaker has read in the report of Mr. John L. Hill on the sewage disposal plant at Columbus, Ohio, which is supposed to represent the highest type of American practice, a similar comment with reference to the offensiveness of septic sewage. He examined the septic tanks and sprinkling filters of the Columbus purification works, and says in his report, published in the annual report of the Chief Engineer of the Board of Estimate and Apportionment for New York City for 1909 (*Engineering News* of December 1, 1910, p. 600):

"While the season of the year and the weather conditions during my visit were unfavorable for the obtainment of the most definite and conclusive results, the thermometer varying between 32° and 71° and the weather being intermittently rainy, still the fact that a strong wind was blowing almost continually was advantageous. . . . I caught the odor from the purification works, suddenly and strong, at a distance of about three-quarters of a mile from the works. There was no doubt about the character and offensiveness of this odor. It was characteristic of the septic tank and for the moment was nauseating. For the distance of three-eighths of a mile this odor was dully sickening; from this point it decreased in intensity and intolerability until a point to the windward of the septic tanks and in the vicinity of the filter beds was reached, where it was not so intensely offensive. . . . The universal testimony (of various persons) was to the effect that under certain conditions intolerable odors were appreciable to the limit of from three-quarters of a mile to one and a half miles from the works, and that the plant might honestly be considered a nuisance up to these limits."

The editor of the *Engineering News* commenting on this statement says: "Undoubtedly the Columbus plant represents the latest and best practice in sewage purification." He also says (p. 599, same edition):

"Most existing sewage-disposal plants are damned by their smell. From the sanitarian's viewpoint, they are (most of them) successful, because they yield an effluent of reduced putrefactive power and reduced disease-carrying capacity, which can be discharged into a stream without causing offense. The scientific sanitarians also aver that bad smells are not of themselves injurious to health. Hence, they

say, these sanitary results are well worth buying at the cost of a little smell. There is, however, more or less popular protest against this doctrine. Indeed, the question may be raised whether the sanitary disposal of sewage has first and last any other object than the abolition of bad smell. In so far, then, as a sewage treating process produces bad odors, it fails of the object it is designed to accomplish."

It is gratifying to know that the septic tank craze is almost a thing of the past. The septic tank has its uses. It produces results, but it can not be classed as a cure-all. The aim of many sanitary engineers to-day is to demonstrate that wherever this is practicable, sewage should be treated in its fresh condition. It should not be allowed to become septic, neither upon the private premises where it originates nor in the conduits which carry it to the point of disposal nor yet in the sewage purification works, where these are necessary.

This tendency is strongly manifest in Europe, particularly in Germany where more and more attention is being given to the removal of as much solid matter as possible from the fresh sewage by screening. Many examples can be cited where before ultimate disposal by dilution in the flowing water of a stream there is practically no other treatment. On this subject the speaker's impressions are confirmed by the views of Prof. H. N. Ogden who in a recent issue of the *Engineering News* says:

"The city of Frankfort-on-Main, for example, with its population of 375,000, discharges into the River Main, where the sewage flow is diluted 125 times. Similar conditions prevail at Hamburg. There the River Elbe has been artificially made over into a superb inland harbor. Similarly the sewage of Leipzig is discharged into the River Elster, the sewage of Halle into the Saale, the sewage of Wiesbaden and of Cologne into the Rhine.

"Broadly speaking, the German attitude toward stream pollution is one of no discrimination between domestic sewage and manufacturing wastes, a careful guarding against putting unnecessary obstacles in the way of manufacturing industries, and a purification of domestic sewage only to that point necessary to prevent a nuisance after its discharge into a stream."

Prof. Ogden also says that the Germans—

"recognize, apparently, the fact that a river, flowing through and by a number of manufacturing cities, carrying shipping of all kinds on its surface and receiving waste waters from many factories, is not and cannot be drinking water and that to establish a high standard of purity for sewage effluents is to impose a needless and burdensome tax on those cities."

But the mistake should not be made of carrying this principle too far. Screening alone is not yet the general practice, not even in Germany where many cities keep fecal matter out of the sewers, nor can it be advocated as the best, except under peculiarly favorable conditions. It is in most cases considered far better to subject the sewage to some treatment that will advance its nitrification, rendering it for the most part non-putrescible before letting it flow to the stream.

To illustrate—immediately after the visit to the Wilmersdorf sewage purification works, one of the sewage farms of Berlin at Sputendorf was visited. The sewage arrived in a fresh condition at a stand pipe on a slight eminence to which it is pumped from

the far off city. There was no foul odor noticeable on the farm away from the point where sewage was actually being applied to the land and foul odors were hardly noticeable at the margin of the small quarter-acre tract being flooded. The soil, after irrigation with sewage by a method of broad flooding, was left covered with a greasy appearing scum. This forms a crust, clogging the sandy soil particularly near the points of inflow into the irrigation compartments and its removal is a source of trouble and expense. It is a question whether other methods of irrigation could not be applied that would in some measure obviate the necessity for removing this material.

In this connection it is remembered that for a great many years the sewage of the Stockton Asylum was applied by a furrow system of irrigation to heavy, black clay land which in the course of time became a black, mellow soil almost humus-like. The irrigation there, too, was carried on without becoming a nuisance until the amount to be handled became too great for the small area under intense cultivation.

Where on the Berlin sewage farm the effluent from the irrigated fields was seen in the drain ditches, and this is the point to be noted, it was crystal clear and far superior in appearance to the water of the river into which it is discharged.

As a rule the disposal of sewage on land and its use for irrigation where such arrangement is practicable has been attended with satisfactory results. But even this treatment has its difficulties and can not be universally recommended, particularly not for regions where soils are heavy and poorly underdrained and winters are long and severe.

Along the line of sewage treatment with the elimination of the septic tank a relatively new arrangement is to be noted which has recently been described by Mr. Chas. Saville, an American engineer at present in the employ at Essau, Germany, of the Sewerage Department of the Emschergerossenschaft. The requirements for the improvement of sanitary conditions in the drainage basin of the Emscher River led to the introduction by Engineer Dr. Karl Imhoff of a sludge tank arranged very much on the principle of the sand-box on our old California mining ditches. The sewage conduit is passed through a long tank 25 feet or more in depth. In the bottom of the conduit are longitudinal openings with sub-boards or other arrangement such that gases rising from below can not enter the conduit. The sludge tank sides rise to the top of the conduit and close against the same so that all gases rising from the sludge can be collected in the spaces at each side of the conduit and allowed to escape to the air. The sewage conduit where passing through the tank is made with bottom plates pitching steeply toward the central longitudinal openings, so that the solid matter in the sewage may drop into the sludge tank. The sewage itself is not interrupted in its flow, which should not exceed a velocity of one foot per second nor be so low as to keep the sewage within the tank more than two hours. The arrangement as described keeps the sludge entirely apart from the fresh sewage. The sewage leaves 95 per cent. or more of its solids in the sludge tank, according to Mr. Saville,

and the sludge undergoes decomposition without forming mal-odorous gases. The gases which rise upon both sides of the conduit in the sludge tank are 75 per cent. marsh gas and 25 per cent. carbon monoxide. There is practically no sulphuretted hydrogen. The sludge in the course of four or five months is completely decomposed and can be drawn off from the bottom flowing freely in open conduits to sludge beds. It dries readily being spadable within three or four days after the water has been drained from it. The sludge effluent is clear without offensive odor and the sludge itself is also free from foul odors. The sludge resembles humus. Mr. Saville says of the sludge—"When once thoroughly rotted away" it "is unobjectionable in character and is easily handled."

This type of sludge tank at the present time appears so full of promise that its use in connection with the treatment of sewage for our many interior cities and towns will deserve serious consideration. But it is a new device and should be tried out here under California conditions. Some experiments with it are already being made at Philadelphia and at Chicago, and those that are needed here should be undertaken by the University of California. This would be something in the line of original research for which the University should be fully equipped. It is only by taking up more research work of this character that the University can advance to the place which it ought to hold in the front rank of all engineering schools of the world.

It may be added in reference to the Imhoff sewage purification tank that in Germany it has passed the experimental stage. It was first used in 1906 and such tanks already serve a population of 250,000.

Though the tendency to so arrange sewage purification works that the sewage may be treated fresh is apparently gaining force, yet there are cases where the reverse may be noted. At Pasadena, for example, where a sewage farm has been in operation for some 15 years or more, the trouble with sludge deposited on the surface has been increasing and there is now being installed a septic tank which it is hoped will sufficiently reduce the amount of the solids carried out upon the land to prevent clogging of the soil. It is a grave question whether the substitution in this case of the foul smelling septic effluent for the comparatively inoffensive fresh sewage will not more than offset the advantage that will result from the removal of possibly 40 to 50 per cent. of the organic matter carried by the sewage.

The question of whether or not sewage that is discharged into streams or into large bodies of water should first be disinfected has quite recently received marked attention, notably in the case of Rochester.

Plans were made for the delivery of Rochester sewage into Lake Ontario after screening and sedimentation and it has been determined on the advice of some of the foremost sanitary engineers of the country that no further treatment is needed. While not admitting a full concurrence in the views therein expressed, the report of Mr. Allen Hazen of New York may be quoted. Referring to the plan of allowing the Rochester sewage to flow to the lake after screening and sedimentation he says in part:

"In my judgment the plan submitted is sufficient—and neither of the two auxiliary procedures men-



tioned need be resorted to. The disinfection of sewage no doubt has its uses, but it is a somewhat difficult and experimental process at the present time. If it were carried out in this case its only use, so far as I can now see, would be to tend to protect the water taken by the Rochester & Lake Ontario Water Co. from pollution. This water I understand is filtered before use. To disinfect the Rochester sewage with this end in view would mean—(1) treating a quantity of sewage probably ten times as great as the volume of water, and (2) treating sewage which is a difficult and expensive substance to disinfect, instead of treating the lake water taken at the filter plant, which is an ideally easy and cheap substance to disinfect. It would certainly cost ten times as much to disinfect a volume of sewage as a volume of water at the intake, and with the greater volume of sewage it would cost at least one hundred times as much to disinfect the Rochester sewage as it would to disinfect the water taken at the intake. The former would only protect the water from that part of the possible pollution which came from the dry-weather flow of the Rochester sewage, which is probably not the most dangerous part of the flow. The latter would tend to protect the water from pollution of all kinds from whatever sources.

"From every standpoint it is enormously cheaper and also more effective to treat the water than it is to try to protect the water by treating the sewage."

"To treat the sewage by oxidation or nitrification through biological filtration on the shore of the lake before discharging it would be to attempt to effect by artificial processes, at great expense, results that will be accomplished in the lake without cost by the organisms that are in the lake water and that are introduced with the sewage with the aid of the supply of dissolved oxygen in the lake water present in amounts enormously greater than required for this purpose. To spend money to do in a crude and inefficient way on shore with resulting inconveniences and nuisances to property owners in the neighborhood that which otherwise will be freely done in the lake without expense and without nuisance is certainly a great and inexcusable waste of natural resources."

It may be added to this statement that disinfection does not render sewage non-putrescent. It merely delays the process of putrefaction and may under certain conditions be quite as objectionable as to leave the sewage untreated.

But disinfection, nevertheless, plays an important part in many of the sewage problems of the present time, and Boards of Health as well as the U. S. Department of Agriculture are investigating the use of chlorine and particularly of copper sulphate with the effluents of sewage works to better prepare them for discharge into the river systems of the country.

In this connection the statement of the eminent English engineer, Mr. J. Dibdin, relative to his experience in treating London sewage is of interest (*Journal Ass. Engr. Soc.*, 1908, p. 310):

"When I received the order to deodorize the London sewage prior to its discharge into the Thames at Barking Creek and Crossness the only material available in any quantity was chloride of lime. The use of this material produced apparently good results at first, but when the effect of the chlorine disappeared the putrefaction of the sewage matters was objectionable in the highest degree, being worse than the nuisance from untreated sewage. I concluded that we must employ a deodorant which would supply oxygen without acting as a germicide. Permanganates were used, and in order to obtain a sufficient supply, I manufactured it by thousands of tons at Crossness on behalf of the Metropolitan Board of Works. The nuisance disappeared, in consequence of the oxidizing action of the permanganate, which also allowed the aerobic organisms to purify the river

while precluding the putrefactive anaerobic action which followed the use of chloride of lime. Of course my action was resented by the bleach industry, and its foremost representatives argued that the oxidizing power of bleach was greater than that of permanganate for the money expended. The matter was referred to Sir Henry Roseoe, who confirmed my investigations after another £10,000 had been wasted on chloride of lime and the river had been made abominable once more by the use of that material."

He also says:

"Since the dead matters of the sewage are turned into living matters by the use of the trickling filters and the sewage is thereby rendered self-purifying as long as sufficient aeration is maintained, the action of the chloride of lime will be to undo much of the work effected by the filters by turning the living into dead matter. The work thus undone will be repeated in the harbor, just as at present the original matters are rendered live and self-purifying. One wonders, therefore, if the chloride is to be used, what is the good of first treating the sewage on filters?"

It is to be remembered, however, that there may be conditions and pathological reasons when disinfection is an essential requirement. On this point Mr. Dibdin says:

"Of course where there are special pathological reasons for disinfection, and the bulk of sewage is small in comparison with the diluent water into which it is discharged, the use of chloride is comprehensible. In such a case, however, the chloride may be added to the sewage direct and the cost of filters saved, since the work of the filters will be carried out efficiently by the aerobic organisms in the diluent water when the effect of the chlorine has passed off."

Notwithstanding all the progress in the art of sewage disposal which has been made in recent years the questions arising in connection therewith are still debatable. The studies of best methods and methods best suited to the various conditions of climate, location and environment will go on for all time.

The Royal Commission on Sewage Disposal of England after many years of investigation and study now recommends a central commission to carry on the work. The Board of Health of Massachusetts after a quarter century of investigations and the collection of much experimental data is still adding new results to its notable past achievements.

The cities on the Bay of San Francisco are fortunate in this that for many years their sewage disposal problems will involve but little more than the securing of a proper dissemination of the sewage in the vast tidal flow of the bay; but as population grows there will be an increasing need for thorough screening and perhaps sedimentation of the sewage in some such tanks as the one invented by Dr. Imhoff before it is put into the outfall sewer.

At New York where at the present time a large intercepting sewer is being constructed for the Bronx the Metropolitan Sewerage Commission a few months ago took a decided stand against allowing its discharge to go into the Hudson River untreated. The Commission points out that when the sewer is completed it will deliver about 1,400 tons of solid matter per annum into the Hudson River and that this amount will be increased to at least 36,000 tons when the capacity of the sewer is reached. The Commission says:

"It has been found that practically the whole of

upper New York Bay and the lower Hudson are underlaid by an accumulation of foul-smelling black ooze in which fragments of sewage origin are readily discoverable. These deposits are of considerable thickness, sewage matters having been brought up from a depth of ten feet below the surface of the mud."

The Bronx sewer to which objection is thus made is being constructed under permission of the State Legislature by a special act approved May 26th, 1905.

This action by the Sewerage Commission is prompted by conditions that will never, it is hoped, be paralleled in the Bay of San Francisco. They are hardly possible except, of course, in the case of the cities which are separated from the deep waters of the bay by a broad expanse of tidal lands and which are too prone to accept a delivery of sewage into some estuary or slough in which the tide ebbs and flows as an ultimate solution of their problems.

At New York the tidal flow is only about one-tenth or one-twelfth of the tidal flow of the Bay of San Francisco while the population that is contributing to the pollution of the New York waters is five to six times as great as that around the Bay of San Francisco. So that even though a rapid growth of population is to be assumed for the Bay Cities and particularly for the East side Bay Cities, objectionable fouling of the bay waters as a whole, if sewage be properly disseminated, must be in the remote future.

But the question is not so easily answered as to what is involved in securing a proper dissemination of sewage in the bay waters. It is manifest that where sewage is allowed to flow into the bay on mudflats between high and low water, that more or less offensive matter will lodge along shore or on the flats that are only periodically covered with water and that sooner or later steps must be taken to keep the waterfront free from such offensive accumulations. The time when some preparation of the sewage for delivery into the bay and when extension of the outfall structures into deep waters will be necessary will surely come for the cities Alameda, Oakland and Berkeley.

The question of sewage disposal with all that this involves both for cities that are favorably located on large bodies of tidal waters and for the municipalities whose problems will be of a more intricate nature is always a timely one and peculiarly appropriate to receive careful attention by the medical profession whose active support the sanitary engineer relies upon when such vital problems are presented for final decision.

#### OPPORTUNITIES OF THE STATE HYGIENIC LABORATORY.\*

W. A. SAWYER, M. D., Berkeley.

In the vast area of California, containing every gradation of climate from the heat of the desert below sea level to the cold of perpetual snow on our mountain tops, a great multiplicity of problems arises to confront the State Hygienic Laboratory. The large rivers of the fertile valleys of the interior and the long stretch of sea-coast with its several har-

bors present questions which can only be solved by expert laboratory investigations. The commerce of our principal seaports brings to us a great variety of foreigners who introduce new disease problems from the Orient.

The essentially progressive people of California, eager to advance measures for public health improvement, and a large and alert medical profession make the outlook encouraging to those striving to subdue in the near future many of our most serious diseases. With abundance of good example from older communities, California has the opportunity of rapidly converting her growing Hygienic Laboratory into a larger institution capable of handling all the varied laboratory problems which face those who are striving to guard our lives and health.

The functions of a complete and efficient hygienic laboratory are analogous to those of the physician in the circle of families under his care. He makes diagnoses of diseases and applies the appropriate treatments. He also investigates the conditions threatening the health of his charges and gives instruction in the methods of avoiding danger. These four functions—diagnosis, treatment, investigation and instruction—include the various activities essential to a complete hygienic laboratory.

The first function, diagnosis, includes most of the present work of the State Hygienic Laboratory. During the five years of the laboratory's existence there has been a steady and rapid increase in the number of specimens of material submitted for the determination of the presence of evidence of disease essentially dangerous to the public health. The examination of material for diagnosis gives the physician and his patient the advantage of early laboratory investigation, and also brings into the hands of the State Board of Health and of the local health officer the report from the laboratory of the presence of disease having a serious public health bearing. At present, throat and nose cultures are being examined for diphtheria bacilli, sputum for the bacilli of tuberculosis, dried blood for the Widal reaction of typhoid fever, blood smears for the plasmodia of malaria, material or cultures for evidence of anthrax or glanders, smears of pus for the gonococcus, and feces for amebae or the ova of hookworm. Mailing outfits complying with the postal laws are sent out on request to physicians desiring to send specimens of the kinds just mentioned. The brains of dogs suspected of having rabies are searched for Negri bodies, and, if these are not found, animals are inoculated with some of the material in order definitely to establish a positive or negative diagnosis. The report of the routine diagnostic work of the biennial period ending on June 30, 1910, showed that 3,955 specimens were examined. These figures show an increase of 76% over the number for the preceding two years. Although the rate of growth of the work shows an increasing appreciation of the value of the laboratory by the physicians of California, the total figures are far too small and indicate that many communities make little use of the laboratory and that many physicians still depend entirely on bedside observation in the

\* Read before the Alameda County Medical Association, January 17, 1911.



diagnosis and management of cases of diphtheria. Consequently they work without any means of detecting those cases which do not present typical membranes and of discovering the carriers who keep epidemics alive after all the recognized cases have been quarantined. For this state of affairs the physicians of communities which are far from the laboratory cannot be given much blame. Unless the physician intending to take a culture has on hand a reasonably fresh tube of medium and a suitable mailing outfit, he must write or telegraph to the laboratory for these materials and wait until they arrive by mail or express. After the culture has been taken, another delay is necessitated in transmitting it through the mails. The total time consumed is apt to be sufficiently great to prevent the report of the laboratory from benefiting the patient and from being of any great value in determining the time of release from quarantine. As a result the physicians practicing in regions remote from the laboratory make little use of its privileges. The laboratory has now the opportunity of correcting this limited and unfair distribution of its services. The establishment and systematic replenishing of depositories for free mailing outfits in drug stores of all the larger towns of the state, would enable the great majority of the physicians of California to drive in a few minutes from their offices to a place where a fresh culture-tube could be obtained. A system of three branch laboratories maintained in Southern California, in the San Joaquin Valley, and in Northern California, would enable cultures to reach a state bacteriologist in a reasonably short time. Such a system would give every part of the state equal laboratory service and prompt and therefore valuable reports.

The present educational campaign against syphilis and gonorrhea has indicated the necessity for reliable statistics concerning their prevalence. One result has been the timely resolution of the State Board of Health making these diseases reportable. Another has been the laboratory's intention to examine smears for the gonococcus. From several sources suggestions have come that the laboratory should undertake the performance of the Wassermann test for syphilis for individuals who can be sent to the laboratory, and for some of our institutions in which the part played by syphilis in producing insanity and pauperism and the resulting expense to the taxpayer has not been worked out. The Director of the Laboratory will be glad to receive from any persons interested in the campaign against venereal disease, and especially from physicians, opinions concerning the advisability of the Wassermann test being performed by the State Hygienic Laboratory.

The second great function of a Hygienic Laboratory is treatment. In Massachusetts the State produced and distributed without cost to the recipients, in the year ending November 30, 1908, 94,645 packages of diphtheria antitoxin and 48,768 tubes of smallpox vaccine. At present the Massachusetts State Board of Health also distributes without charge in glass containers a solution of one per cent. silver nitrate to be used in the prevention of gonorrheal ophthalmia in the newborn. The manufacture of diphtheria antitoxin and vaccine by

the State of California does not at present seem to be urgently indicated, especially as certain manufacturers have agreed to sell antitoxin for use in indigent cases at a very low cost.

Although the manufacture of vaccine virus for the prevention of smallpox is well cared for by private laboratories and the public is protected by Federal regulation against contamination of the vaccine by dangerous impurities, there is as yet no official safeguard against the sale of inert vaccine. It seems desirable that the State Hygienic Laboratory should request records of the percentage of "takes" from each fresh supply of vaccine used in public institutions. A report from the laboratory that a reasonable percentage of successful vaccinations from a given sample had not been obtained would result in the refusal by the producers to put on sale any of the vaccine produced in the same lot. A commercial laboratory would be more than repaid for the occasional loss of a quantity of inert vaccine by improvement in its reputation for reliability of the product sold. A systematic series of tests for potency would greatly diminish the large numbers of failures to "take," and consequently increase the protection of the community against smallpox. At the time of an epidemic a quantity of impotent vaccine could result in a failure to prevent the spread of smallpox to many new victims.

There is one variety of treatment which should be taken up by the State Hygienic Laboratory at the earliest possible time. That is the Pasteur treatment for the prevention of hydrophobia. The control of this disease is essentially a community problem and an infected individual is seldom to blame for his inoculation through the bite of a rabid animal. The disease has become so prevalent among dogs in some parts of the state that in a period of about a year 122 laboratory examinations of the brains of animals (mostly dogs) showed conclusive evidence of the presence of rabies. Most, if not all, of these examinations were made between November 2, 1909, and November 11, 1910, in three laboratories, the City Laboratory of Los Angeles, the Pathological laboratory of Dr. Stanley P. Black in Los Angeles, and the State Hygienic Laboratory in Berkeley. During this same period two human deaths occurred in California from hydrophobia, and the United States Public Health and Marine-Hospital service in Washington, D. C., sent virus for 92 Pasteur treatments to this state. The procuring of virus from Washington, or sending the person bitten to some Pasteur institute in the central part of the United States necessitates a delay which sooner or later will be responsible for deaths. A Pasteur institute is needed on this coast, and it seems wise that it should be under state control as a Department of the Hygienic Laboratory rather than that one or more institutes on a commercial basis should be allowed to take possession of the field.

The third great function of the Hygienic Laboratory is investigation. This is directed along a great many widely separated lines.

The supplementing of the field work of the Sanitary Expert of the State Board of Health by the analysis of water samples and of sewage, and by

the study in the laboratory of problems concerning the methods of water or sewage purification, should be an important work of the laboratory. The bacteriological part of these investigations, especially the examination of drinking water for the presence of colon bacilli indicating sewage contamination, is at present being done and will continue to be of great importance in the control of water supplies. There should be a separate department or laboratory for the study of sewage and water problems, and this laboratory would probably find it necessary to maintain experiment stations for the study of the purification of sewage and water under the special conditions existing in our state. This department should be in charge of a man who has had the training of a civil engineer, and who has specialized in sanitary engineering. The chemical examinations of water and other substances for the detection of ingredients dangerous to public health could well be combined with the examination of food and drugs in a department headed by a man whose training has been that of a chemist. A laboratory of this sort is now separately maintained by the state for the examination of food and drugs.

Investigations of the sterilizing power of antiseptics and disinfectants should be made by the bacteriological branch of the laboratory. Whenever a new and valuable product is not properly appreciated by the public, and especially when some useless substance through misleading advertising is receiving undeserved popularity and is causing a false and dangerous sense of security in those who use it, the laboratory should investigate and publish the results.

Some of the eastern laboratories, for example the Research Laboratory of the Department of Health of the City of New York, are doing valuable work along various problems connected directly or indirectly with public health diseases. That research should be carried on along lines bearing on the welfare of the various sections of the state cannot be questioned. There are many broad problems important to the health of Californians which have not been satisfactorily worked out anywhere, and which, in many cases where satisfactory work has been done, have not been applied to the conditions existing here. A good example of research carried on within the field in which the results are to be applied, is the excellent study of bubonic plague in California, and of the methods of its control, carried on by the laboratories of the Public Health and Marine Hospital Service in San Francisco. A number of diseases which have been studied in many parts of the United States, but so far without great success, exist also in California. For example, the sources of infection of acute poliomyelitis and its method of spread are still obscure. It is only right that our state should carry on investigations, the results of which will add to the mass of information from which great and useful discoveries will certainly be made.

The fourth and last division of the functions of a State Hygienic Laboratory, is instruction. The work of the laboratory should be announced in popular and brief form in the Monthly Bulletins of the State Board of Health, and in circulars of instruction and advice to the people of the state.

In addition to these popular writings warning people of dangers and teaching them the methods of avoiding them, discoveries of importance to the country at large should be published in scientific journals, or should be presented before scientific bodies. This would enable the results of our efforts to be used by the workers along similar lines in other parts of the world. The congresses on tuberculosis, the conventions of large medical and public health organizations, and the public health demonstration cars and rooms, should be made more effective by exhibits specially prepared in the State Hygienic Laboratory for the purpose of popular instruction. At present a box containing a set of killed cultures illustrating the bacteriology of ordinary life, and indicating the danger from flies, dust, and soiled fingers, is being planned for loaning to teachers and public health lecturers for use in demonstration in their work of instruction. Such outfits could easily be made to contain a few sterile tubes of culture medium ready for the performance of illustrative experiments in the growth of bacteria from material collected at the place of instruction. Occasionally the laboratory sends out at the request of physicians, slides of diphtheria bacilli or of brain substance containing Negri bodies, for purposes of demonstration. This function can be increased until considerable assistance is being given to health officers and physicians who are helping to solve the problems of their communities by doing laboratory work along public health lines.

The many functions which I have indicated in this article involve, of course, expenditures far beyond the present income of the laboratory. It is the desire of the workers along these lines to see at some time in the near future, a special building erected for the housing of the hygienic laboratory. A structure containing distinct groups of rooms devoted to bacteriology, to the Pasteur Institute, to the food and drug and chemical laboratories, and to the department of sanitary engineering and its laboratory, would bring together the various branches of the work. Smaller rooms for workers in research could be grouped with the corresponding laboratories. The administrative rooms of the various departments should be the headquarters where field workers of the State Board of Health can come to write their reports, to confer with the technical libraries of the departments, and to be in touch with the laboratory workers. A close acquaintance between the laboratory and field workers, and the opportunity for discussion of their mutual problems, are important to the efficiency of both branches of the work.

In order to bring to a high state of efficiency the many lines of work indicated in this article, it is necessary that the laboratory should receive the loyal co-operation of the physicians and health officers of all parts of the state. The local men are by necessity the first to discover the need for laboratory work, and are usually the collectors of the materials to be examined in the laboratory or the givers of information leading to the assignment of a special field worker to duty in their neighborhood. Not only should the laboratory work in intimate relation with physicians, but there should also be close



co-operation with sanitary engineers and with trained veterinarians, as well as with all other public-spirited individuals who are directing their energy toward improving the public health.

### THE MAKING OF A HEALTH OFFICER.\*

WILLIAM COLBY RUCKER, M. D., P. A. SURGEON,  
A. S. P. H. and M. H. S.

Within the past two or three years it has become more and more apparent to those engaged in the solution of sanitary problems that despite the enactment of legislation looking to the prevention of disease, the enforcement of the sanitary code is wellnigh impossible without a coincident education of the general public in the rudiments of hygiene. Hence in those states which are blessed with an efficient, wide-awake public health organization, public lectures have been employed, traveling exhibits of various sorts have been prepared and an extensive propaganda of sanitary education has been launched. The great colleges have introduced into the curriculum compulsory courses in hygiene, lectures on the prevention of disease have become a regular part of the program at teachers' institutes, and in the high schools and grammar schools elementary hygiene is now taught.

Societies for the prevention of tuberculosis, the eradication of the venereal peril and the inculcation of the principles of right living have been organized, and have been preaching their doctrines through the press and from the rostrum. We live in a physical age and the wave of physical reform, the attention to the bodily machinery of the individual and the mass, is sweeping from one end of the land to the other. The demand for a Federal Department of Public Health has crystallized itself in the Owen Bill which is now before the Congress; the popular magazines are devoting more and more space to matters of general and personal hygiene; in fact the sanitary renaissance is upon us and the corner stone upon which this great fabric rests is education.

Gratifying as this is to those who believe that publicity is the handmaid of sanitary science, a careful study of the mechanism of health administration in the United States reveals a woeful lack of uniformity and in certain instances, deplorable evidences of inefficiency. In a detailed study of the statistics of typhoid fever in the United States the writer has had occasion to review all the recent available reports of the various state Boards of Health and has been deeply impressed with the high character of a few of the reports and the evidences of defective organization of the remainder. The registration states issue publications showing careful collection of statistics and perfect system of health administration, but many of the states publish annual reports which are of no value to the student of sanitary work and its results. Some issue no reports whatever and a few do not even collect the vital statistics. Frequently pages which could well be devoted to the publication of statistical studies or reports of sanitary endeavors are utilized in biographies of members of the issuing Board, and in place of pictures of something of sanitary importance we

find photographs of the governor or the state delegation in Congress. On the whole, when published the mortality statistics are quite accurate, but morbidity statistics as a rule are valueless. This latter fault should not be charged to the state boards of health, but to the profession as a whole. Some states do not use the International Classification of the causes of death, a few still cling to the classification introduced by Dr. Farr in 1835, while one or two boards seem to have a nomenclature all their own.

It is evident from the foregoing that something is wrong and it is the purpose of this paper to try and point out what this is and how it may be rectified.

With the exception of a few states, appointment to the state board of health and to the position of secretary or state health agent is a matter of political preferment and while the people are more generally demanding a higher efficiency of the occupants of these important offices, there is as yet too little attempt to secure the best trained men for these positions, and frequently the attached salaries are insufficient to tempt men of large experience. The tenure of office is also insecure and a public health officer who is unfortunate enough to arouse the animosities of those of strong political affiliations is apt to be rewarded with his congé. What has been said of state health officials applies equally to municipal and county sanitary officers. In the latter case the salaries are even lower and the tenure of office more insecure. Granted a sufficient salary and permanency in office, could physicians of ample training and experience be secured to discharge these important duties? While the Association of American Medical Colleges requires thirty hours of lectures in hygiene, it is hardly conceivable that such meagre instruction is sufficient to equip one who is to be entrusted with enforcement of the sanitary code and the protection of the general public from preventable disease. The average health officer is sincere in the discharge of his duty as he sees it, but it is doubtful if the limited instruction received in college, especially if the health officer is a graduate of long standing, and the meagre opportunities for study of modern sanitary methods, are extensive enough to meet all the requirements.

A few of the great eastern universities offer post graduate courses leading to the diploma of Public Health, but these are a long way off. The University of California, the Leland Stanford, Jr., University and the Oakland College of Medicine all contemplate introducing such courses into their curricula at an early date, but even if all of the medical colleges should offer opportunities it will be several years before they are largely attended, and even if they were, it would take several years before a sufficient number of certified sanitarians could be produced.

While I cannot speak for the plan and scope of the work which it is proposed to follow at Stanford, I am told that California contemplates the collection under a single head of a number of courses now scattered through several departments of the college of natural sciences. The non-technical course in the sanitary engineering curriculum, the

\* Read at the Fortieth Annual Meeting of the State Society, Sacramento, April, 1910.

bacteriology and microscopy of water, parasitology, medical entomology, vital statistics, food inspection, etc., will all be included. It is felt that little need be added to the courses now offered to make the work very complete.

The course which will be offered by the Oakland College of Medicine will cover one year and will be both practical and theoretical. It will include general and personal hygiene, sanitary engineering, especial stress being laid on the collection, storage, purification and delivery of water, and the collection, purification and disposal of sewage; theoretical plumbing; sanitary architecture; sanitary law, bacteriology, parasitology including medical entomology, sanitary chemistry and food inspection. The question of the collection and disposal of city refuse, the registration and compilation of vital statistics and the epidemiology of the communicable diseases will receive especial attention.

While such courses are to be highly commended and are undoubtedly our salvation in the future, we require some other means for our present uplift. We have heard much of the education of the general public and the better preparation of health officers of the future, but what shall we do to raise the standard of efficiency of the sanitary officer of the present? The answer is, "educate him." All of this has been borne in upon me all the more forcibly because recently I have been trying to increase my own knowledge of such things and I will say frankly to you that I have been simply overwhelmed with the depths of my ignorance.

But how shall we educate the underpaid and overworked health officer? He cannot afford the time and expense of a year away from work nor does his salary warrant such sacrifices. In other lines of educational work the correspondence course has been found of great value and it would seem worthy of a trial in the case which we are considering. The ideal method would be to have such courses given by the Federal Health Service, but that body is already burdened with tasks out of all proportion to the time and number of its personnel. Hence it would seem the duty of the individual states to give their various health officers the opportunity to bring themselves up to date in the knowledge of modern sanitary methods. California is blessed with an unusually efficient and progressive State Board of Health, therefore, what would be more natural than for that board to offer such instruction gratis to all health officers within the state? The cost would not be great and would include printing, postage and a few books of reference to be loaned to those taking the work.

As an experiment, a course in public water supplies might be first offered and if this proved a success the scope of the work might be extended. It is believed that such an opportunity would be welcomed and in offering it no reflection would be cast upon the ability of those who, against great odds and an insufficient remuneration, are fighting the public's sanitary battles. All of us must realize that the few lectures on hygiene received ten or fifteen years ago and the occasional opportunities for self improvement afforded by the meetings of the Health Officers' Association and a few scattering

articles in the medical journals, cannot be compared with a regular course of study mapped out by men of the experience and learning of your present state board. It is admitted that the correspondence method of instruction is not ideal but it is believed that it would serve to close the present hiatus until better means can be afforded.

#### Discussion.

Dr. W. F. Snow, Sacramento: I can only add the very heartiest approval of all that Dr. Rucker has said in his paper. It seems to me that the keynote of success is to place before the public, in the capacity of health officers, men of adequate training in this public health work. As Dr. Rucker has said, we cannot hope to achieve, at present, even with permanency of office and salary, what we could achieve with trained men, taught this work in our universities; men trained to handle and grasp the situations. Many of our states are doing certain things which will perhaps lead to this thought of Dr. Rucker's. The State of Massachusetts has provided ten to fifteen men who are advisory instructors of the State Board of Health. They have districts and traveling bureaus and have the power to assume control of the executive work in their districts. The State of New York requires that all health officers shall be sent to the Annual Conference of Health Officers under the direction of the State Health Board. Pennsylvania has done away with local organization and has 600 sanitary police with about ten medical officers from the medical profession to be called upon as medical experts. However, none of these will take the place of the school of correspondence which Dr. Rucker has suggested, and his paper certainly is most practical and timely.

Dr. S. W. Langdon, Stockton: I have been very much interested in this discussion and I think Dr. Rucker's remarks are very timely. When any one of us assumes the office of health officer, we know very little about the duties before us and we all realize we should learn more. Soon after I went into the office I went to Berkeley and took a course with Dr. Ward, which I found of great benefit. A course of correspondence, such as Dr. Rucker has suggested would be a great help to us all. There is one incident of interest which happened in our town in 1908, which goes to show the necessity for one health officer to help another. A man, in one of our small mountain towns had smallpox, for which he was quarantined. Becoming tired of quarantine, he got away and left the town. The health officer of that place telephoned to me at Stockton, saying that he thought the man had headed for Stockton. I advised the Sheriff and police who discovered the man, but not until he had been in town two days. As a result, 20 of his friends came down with smallpox soon afterward and by the following January, three months, we had 80 cases in Stockton, all because of our friend from the mountains. By March, however, we succeeded in getting rid of the disease and since then have had a pretty easy time, so far as smallpox is concerned. I mention this to show how a health officer of one place can co-operate with another. The escape of these people will occur.

Dr. F. L. Rogers, Long Beach: I am not a health officer, but I am exceedingly interested in this work and it seems to me that I cannot do less than to say at this time to you who are not health officers, that it is my opinion that we owe it to the community where we live, to wage an active campaign in support of our health officers. We can do a great deal to make the work easier and more efficient. The work our health officer has done in my community in particular, has been excellent and aided by the encouragement of the medical profession we hope for the best results. We must not sit back and wait for the health officer to accomplish these things, but we should offer him our co-operation.

Dr. Wm. Le Moyne Wills, Los Angeles: I have



the honor to belong to the State Board of Health and our views are almost entirely in accord with those suggested in this paper. The medical profession of this state should influence the legislators to enable the State Board of Health to have more funds and the county supervisors should appreciate the necessity of electing and paying health officers and providing them with traveling expenses so that they could attend such meetings as these. In Riverside county two years ago there was no such thing as a health officer and we had smallpox all over the county, but to-day we have one of the most enthusiastic young men in that county as health officer and he is working to the best of his ability and it is astonishing what he has accomplished. Perhaps Dr. Tucker will tell you something of his experiences.

Dr. G. E. Tucker, Riverside: I certainly feel somewhat modest in making any remarks in regard to the work I have been doing as county health officer in Riverside county. However, after the kind things Dr. Wills has said about me I feel obliged to speak for a moment of what has been occurring in the last six months in our county. For a number of years we have been unfortunate in not having had a health officer as the supervisors were somewhat prejudiced to making an appointment. The state legislature overcame this prejudice, however, when they passed a law making it mandatory upon every county to have such an officer. When my appointment was made, I was told that I should receive \$50.00 per month if I could earn it and if not the salary would be reduced; instead at the end of two months the salary was raised to \$75.00 with a promise of an increase if I could earn it. Rather reluctantly I asked for an appropriation for a kodak and supplies which was promptly made. When I spoke about going to Sacramento to attend the meeting of the health officers, provisions were made to meet my expenses. Incidentally, when I spoke of having squirrels shipped to San Francisco from our county, and explained the necessity of having a great many examined, I was told to go ahead and I was assured all expenses would be paid. After the health work was started, I found the supervisors were not only willing to give me their individual support but I believe they would also be willing to increase the salary to an amount commensurate with the duties of the office. A great many of the subjects before the health department to-day, have been problems with which we have had to cope, but we are probably more fortunate inasmuch as the city health officer is my partner and we are able to co-operate in all our work. We have had to deal with the rabies question, having had 26 cases among dogs in the city and county. The supervisors and city council made allowances for the expenses incurred in the caring for seven to ten dogs during three or four weeks, which was no small item. The question of typhoid fever has been a serious one with us. We have been losing a number of people with typhoid fever every year, probably as many as ten to fifteen, but heretofore we were unable to trace the source of infection. This year we made up our minds to determine, if possible, the cause of our epidemic. Accordingly the food and water supply were thoroughly investigated and apparently were all right, but the occurrence of cases among people living in the vicinity of irrigating canals led us to trace the contamination of canal water to the sewage which was carried into it from a neighboring city. Two ditches, one carrying 850 inches of water going in one direction of the city and another one carrying 3000 inches going in the other direction, were found polluted. This water was not used for drinking purposes but dairy utensils were washed in it, such implements as the pails, screens and so forth and the large cans used for carrying the cream to the creameries were rinsed in this same polluted water. One can readily imagine the condition of butter made from this cream. We hope to have all of the sewage diverted from these canals in a few months. Notices to the water companies owning the canals have been

issued and warning notices have been inserted in the papers, and other precautions have been taken, but it is hard to prevent the people from using the water. We have also had to deal quite extensively with trachoma.

Dr. Stanley P. Black, Pasadena: This question is of the greatest importance. At present it is simply a political job. Many doctors are willing to accept the position and do a lot of work and do it without pay, but still there are certain points which give them a standing in the community and that pays them—or they think it does. However, in going about the neighboring counties and seeing the health officers, we find how little most of us know about sanitary conditions. We do not know how to investigate and that is the first law of success in this work. I think the health officer should not be appointed by the local mayor or local board of health. They are personally prejudiced in favor of one man or another. I believe the appointments should be established by the state law and should be made by and with the advice of the State Board of Health. If we have a degree of public health, as contemplated in the universities, they, the State Board of Health, can gradually work these graduates into the positions of health officers.

Dr. W. Simpson, San Jose: It comes to me to-day that I am just of age in this work for it is just 21 years since I began it. I was a political appointee and have been accepted as such straight through, having been either city health officer or connected in some way with the health department for 21 years. I certainly appreciate the difficulties encountered in the beginning by not knowing anything about it. There is something to be said in favor of the low salary for it does not tempt any man to take the position unless he is a crank on these matters. The only method by which I have seen my way out of my difficulties was in knowing how to get work out of other people who knew the subject thoroughly and so I send to Dr. Rucker whenever I do not know what to do and someone comes from his office—or else I send to Doctor Snow—and by some competent person the inspection is made. I for one, am ready to receive instructions through the correspondence course as suggested by Dr. Rucker, and endorse it most heartily.

Dr. Raymond Russ, San Francisco: I was much impressed with the section of Dr. Rucker's paper in which he stated that the public as a whole is deeply interested in health matters and that we as physicians will have to do a great deal in order to keep apace with the public mind. While physicians understand the general principles of public health work they are lacking in accurate knowledge of many technical questions such as sewage disposal, water supply and garbage incineration. A knowledge of the elements of sanitary engineering is essential to every physician doing public health work. It is only with such knowledge that he will be able to cope with the problems which confront him. The need of education in these subjects is a matter of universal comment; there must be a great mutual uplift. Therefore I believe that the suggestion which Dr. Rucker makes is most excellent and that we should not fail to act upon it.

Dr. R. G. Brodrick, San Francisco: I think the keynote to the whole question of the making of a health officer is taking his position entirely out of politics. Until you do that you will simply have a creation in the power of the administration. Our recent experiences in San Francisco you know. As soon as a health officer does any work he very quickly hears that he is a little too active, that he is hurting certain interests. I do not think you will find in any part of the state any health officer who is doing his duty who is not meeting opposition. Your efforts in the future should be in the direction of having a trained body of men appointed by the State Board of Health who should be delegated to every county or city, to give their entire time to their profession. So often you find, owing to the

meagre salary, that this position is simply a side issue. The doctor gets his appointment and continues attending to his private practice at the same time, and really about all the work for the health office that he is doing is signing death certificates. This work is too important to carry along with a large or growing practice.

Dr. W. W. Fraser, San Jose: As I have been a member of the board of health of San Jose for two years as either its health officer or president, I realize the value of the paper which Dr. Rucker has read to-day, and I would emphasize it a little further by saying that instruction in correspondence, as suggested by Dr. Rucker, should not only be taken up by the health officer but by every physician as well.

Dr. C. Rucker, closing discussion: The directory of the City of Washington has the following inscription upon the fly leaf, "In order to look a name up in this directory you must know how to spell it." In order to solve the sanitary problem you must know something of the basis of the thing. You must have some idea about the individual problems, of mechanics, of sanitary engineering, etc., etc. We should also have some idea of the methods of estimating the population of the city in question in 50 years from now. We must have some good general notions about the way we are going about it to protect our water supply, preventing the pollution of the water after it has collected—pollution either by pathogenic organisms or growths which may make the water taste badly. We must know how that water should be filtered and purified or sterilized before it is delivered to the mains. We must have some idea of the engineering problems of the laying of the mains. We must know something going back of all this,—back to the rainfall, and where to go to look up such data, and where to find the different parts of the weather bureau reports. We must at least know where to go to look these things up. I regret to say that many of us have these problems brought up to us and we are unable to tell even where to go to look up the information. The books we have and the text books are out of date—they are of the stone age—there are better methods and safer methods and more economic methods. It behooves us as health officers to know these things. A man who is a health officer is just as much a specialist as a man who treats the eye, ear, nose and throat, or flat feet or anything else, because he is the man who has got to go to work and protect the entire population. He is the man who is responsible to the general public for the health of the community and let me tell you that the general public is waking up to holding the health officer responsible. And more and more in the future they are going to see to it that the health officer is true to this trust. They are not going to allow that Dr. Blank to have the appointment because he is a friend of the mayor. The people are getting wise to these things and are going to see to it that Dr. Blank is appointed because he can earn the salary and they are going to pay the proper salary if he can deliver the goods. If Dr. Blank takes the job and poses as a specialist but does not deliver the goods, it is a case of malpractice. The idea that I have put forward in my paper has been to make this Society think and to make the members of this Society talk in order that when we see this discussion before our eyes in the Journal we may talk it over and think it over so that we will do something; that is the thing that tells the story,—whether we deliver the goods or whether we merely sit around and talk about it.

## THE OBSTETRIC CONSULTANT.\*

By E. M. WILDER, M. D., Sacramento.

It would be an ideal condition of things from the viewpoint of reduction of the morbidity and mortality of mother and child if it were possible for all confinements to take place in properly appointed obstetric hospitals and be attended by qualified practitioners engaged in no other line of work. But such a possibility is as a general proposition clearly out of the reckoning at present and probably for many, many years to come; and we must content ourselves by making the best of the condition that confronts us.

Time was when the field of human knowledge was so circumscribed that it was possible for a contemporary, as in the case of the worthies of the Middle Ages, to attribute to a single man acquaintance with every thing known to the race. He knew everything there was to be known. But times and conditions have changed, the Middle Ages are past and we would now consider as a prodigy a man who knew all the facts in any single department of knowledge and endeavor, let alone the entire circle of human thought. Nor do we consider it remarkable or a confession of weakness when men now divide and again subdivide even single lines of thought, endeavoring to arrive again at a viewpoint where the horizon is sufficiently circumscribed to enable a single intellect to comprehend all the facts contained therein, well satisfied if they can be master of their entire subject, limited though it be. It seems hard to set bounds to this rage for subdivision of topic, this desire to specialize on one point and approximate perfection thereupon. Nor will I take your time with a recital of the way it has worked out in our own line; medicine has been delivered over to specialists, actual or professed, without number, and with succeeding decades the specialties are again divided till an internist may, for example, devote himself exclusively to the digestive system or to the heart.

Yet in all this wilderness of specialties has it occurred to you that there is one department of medicine almost free from specialism? Specialists in obstetrics are few and far between, meaning thereby men who devote themselves exclusively thereto. There are plenty of specialists in obstetrics and gynecology combined and plenty of practitioners who while engaged in general practice, have a major interest in obstetrics; but even in large cities there are but few specialists in obstetrics alone, and why?

Primarily because while the financial reward to be drawn from most lines of special work is large as compared with the income from general practice, the pecuniary emoluments of even a reasonably high class of obstetric practice are, in proportion to the wear and tear incurred, pitifully small. Except among the well-to-do who are after all but a small

\* Read at the Sacramento meeting of the Northern District Medical Society, November 15, 1910.



proportion of every community it is next to impossible to be adequately compensated for obstetrical work. To give the necessary care to the pregnant woman, to carry her through her labor and puerperium certainly entails as much knowledge and skill as to remove the appendix or enucleate tonsils, yet the charge for the latter are out of all proportion to what the public willingly pays for the obstetric work. This is primarily because obstetrics is that branch of the profession in which has lingered longest the element of superstition, not alone among the laity but among the profession. Familiarity has indeed bred contempt. The laity have from time immemorial seen wise women attend and a measurable proportion of both mothers and infants survive; further, a large part of the profession has ever made light of the parturient process, teaching the public in fact that child birth is a perfectly physiological act through which every woman would come without mishap were it not for visitations, apparently from the Almighty, in the way of "fevers, caked breasts," etc., against which precaution is useless. Why then, naturally asks the public, should the charge for obstetric practice be anything but low? And as a result they resent any special charges for such work, totally failing to realize that as a general thing, in obstetrics as in other lines, poor pay is a premium on poor service.

For most of the untoward results of incompetence on the part of the obstetrician are slow to make their appearance: infections, unless they absolutely kill at once, often delaying their most grievous manifestations for years. The ills consequent on a submucal laceration of the levator ani take time to reveal themselves to the patient who has been congratulating herself on having "had no stitches" and are often attributed through a mixture of superstition and fatalism to every cause but the right one. And so on. The public is not competent to determine when it has received adequate obstetric attendance and when it has not. It has been on the wrong track for ages and now when part of the profession would gladly attempt the first steps in educating them up to a proper appreciation of the importance of adequate obstetric care and the necessity of adequate pay therefor, another large part of the registered profession deliberately, for selfish, shortsighted ends, continue to mislead, misinform and undercharge. Well, so much for that. It is one of the reasons why in most cities an obstetric specialist would have hard pickings.

Secondly: the average general practitioner has always striven to retain his obstetric practice. He refers anything from enlarged tonsils to cancer of the stomach to the proper specialist but when it comes to confinement cases he draws the line. When he has become independent or worn out by a plethoric practice he may give up some of his obstetric work but this is generally done by raising his fee so as to slough the less valuable patients, retaining for himself the few whom he desires to please and who pay him well. When he finds enlarged tonsils in one of his best families he promptly sends them to a qualified specialist that they may obtain the best service the community affords, but not the obstetrics of the same family. That he will do himself. The obstetric specialist may have the poor ones. And

this from a belief that the doctor who brings the baby into the world and ministers to the mother in her convalescence will, in the large majority of cases, hold the family.

How often one hears the statement: "I loathe obstetrics. I hate the night work, but I have to do it for if I give it up I would lose my families." So both because the general practitioner does not want to give up the obstetric work in his good families and equally because he could with difficulty give up that in the poor families if he wanted to, the general practitioner is and will continue to be the obstetrician of the country.

And it is the purpose of this paper to outline a plan by which these general practitioners who wish to give up obstetrics may do so without losing good families and those who wish to continue obstetric practice may do so with a minimum of disadvantage to the patient.

In other words I wish to urge better obstetric training on the part of those family physicians who wish to continue obstetric practice, and also special attention to this line of thought on the part of one or more physicians in each community to whom those who continue to do obstetrics may turn when difficulties and uncertainties present themselves, and to whom those who wish to retire from obstetric practice may refer the obstetrics of their family practice with a knowledge that it will be well done and that the patient and family will return to the sender when the referred case is over. I know that exception will be taken to the suggestion that the average physician is not qualified to undertake obstetrics unsupported and unadvised, but I believe it to be true.

And for the following reasons:

Let us first consider that class of medical men whose knowledge of asepsis either theoretically or as applied to obstetrics is a negligible quantity. No one will argue that these are qualified and they are dangerous in direct proportion to the clinical experience they have amassed, because of its effect in stimulating their nerve, for the more routine cases they have attended without obvious disaster the more they presume to interfere in the difficult ones.

And practically in a class with these, those practitioners who with some theoretical knowledge of the bacterial origin of wound infection are entirely unable practically to apply that knowledge to the practice of obstetrics.

But taking the large body of the profession, the men who try to keep up with the literature and abreast of the times, so far as time allows, what of them?

Although by far the larger proportion of parturient women are delivered easily and safely by the unassisted processes of nature, if but the poisoned interference of what Beverly Cole used to call "meddlesome midwifery" which by the way is not an attribute of midwives alone, be kept away, there is a very considerable fraction of the total number in which the delivery will not, can not, be normal; and the successful outcome of this latter class depends on no other single factor so much as on the earliness with which the abnormality of the impending labor is determined. Every general practitioner, therefore, should be so trained that he is able prior to the

beginning of labor to determine with a reasonable degree of certainty whether the patient will be normally delivered or whether some operation will be necessary; excepting as an operation, of course, ordinary low forceps. True there are and will be for many years yet, till the obstetric education of the public is farther advanced, cases that do not present themselves to the physician till labor is beginning or has been in progress some time. These are outside the argument, but if a physician accept obstetrics at all and is acquainted early in the pregnancy with the fact that he is to attend the delivery, he thereby assumes a heavy moral obligation, no less than what I have outlined above, to attempt to foresee and foreward the abnormalities of confinement.

How many general practitioners possess a pelvimeter? How many are in the habit of determining the true conjugate of the pelvis? Yet every patient should be carefully measured and examined at about the seventh month. Pelvic measurements are not exact nor all fetal heads the same size but the routine of pelvic measurement and abdominal palpation so familiarizes the practitioner with the relative size of normal pelvis and fetal heads that he will never make the mistake, to call it by no harsher name, of using high forceps and great force upon a head that can not come through a given pelvis in safety. He will learn to find mechanical obstructions, tumors malignant or otherwise, exostoses and variations from the normal pelvic conformation and to approximate the size of the child's head. The patient should be seen at least once a month for the first seven months and twice a month afterwards and her general condition noted, for a strong woman is able to deliver a child through a given pelvis when a weak or delicate one would find it difficult or impossible.

There are three great factors, the pelvis, the fetus and the power a woman may have to push the child through; and he who leaves out of account any one of the three may fail in his prognosis.

The pelvis should be carefully measured and also carefully examined digitally before labor, for any abnormalities and any variations of shape. I have seen, as have you all, women with apparently normal measurements with a sacral promontory projecting so far toward the pubis as to make labor very difficult, which fact might obviously better be determined at the seventh month than stumbled on after the woman had mysteriously failed during many hours of hard pains to force a normal head through a pelvis of apparently normal dimensions. A normal pelvis can usually be determined at the first examination but if there is any doubt several examinations should be made and if doubt still exists and the size and consistency of the child's head be not determined it is allowable and sometimes most necessary that the patient be examined under anesthesia. And it goes without saying that these vaginal examinations should be made if possible at a time sufficiently before the onset of labor to avoid any possible contamination of the birth passage at confinement. Perhaps the most extreme instance of this desire to examine the pelvis thoroughly and at the same time avoid contamination of the birth passage is afforded by the method of rectal examination advocated by members of this society.

After these examinations have been made and the absolute and relative sizes of pelvis and head determined the third factor, the strength and health of the mother, should be weighed in the balance; for it is well known that a weak, delicate woman bears a primary Cesarean section better than a late high forceps or version. If the patient is a multipara the former labors should be taken into account, for a patient who has had a long, tedious labor is more likely to have all her labors in like manner, whether it is from the pelvic formation, the fetal head or the lack of strength of the mother.

To an as elaborate attempt as is here outlined at reducing to an exactitude the prognosis of the difficulty of an expected confinement two classes of objections will be raised.

First: All this entails an amount of labor that the busy general practitioner, underpaid as he is for obstetrics, will with hesitation add to the burden of his daily routine; but to this I can only reply that if any general practitioner is not ready to give the obstetric patient the best care that he can, he is morally bound to relinquish her to some one who will do so. He has no right to gamble with death on the fact that a vast majority of confinements are normal and that of the abnormal ones he can terminate a majority with forceps. That forceps are not always potent all of us know who have seen physicians, one after the other, perhaps with foot braced against the bedside, pull till the sweat stood out on their foreheads and the patient was all but pulled apart. I know of no more unscientific operation than that of high forceps as usually applied.

Second: It may be objected that patients will take exception to the additional expense entailed by consultation. To a measurable degree this may be true and a campaign of education of the public may have to be undertaken on this as on other topics in obstetrics. Yet those who can afford consultation may be brought to see the necessity thereof; and as to those who can hardly afford a confinement fee at all, let alone the price of trimmings, that will arrange itself as do other consultations on the poverty-stricken. I will admit that the public is by no means educated up to appreciating all this extra care and effort on the physician's part. It is by no means impossible that a family otherwise fairly intelligent will resent your well intended efforts to reduce the chances of morbidity or mortality in the case, and refer indignantly to the fact that Mrs. — got along all right, though Dr. — simply rolled up his sleeves and didn't even put on an apron. There is no doubt that by doing on this as on other lines of activity one's full duty one will occasionally lose business; but the question is fully up to the physician, "Are you going to take chances to avoid possible loss of business?" And again I repeat, the public in this matter as in others must be educated for its own good.

Now there are a vast number of general practitioners well qualified in many lines who, while prepared to handle a normal routine labor, must frankly admit that either through inadequate instruction or clinical opportunity, or through plain rustiness in those lines of thought, even though they should attempt the comprehensive examination outlined above, they would be uncertain as to the findings and



doubtful as to the interpretation thereof; in other words, they feel that they can handle a normal case of labor, but they are unable to prognosticate whether the case under consideration will be normal or not.

And here we come, I believe, to the topic of this paper and enter the field of the consultant in obstetrics. We have heretofore, I believe, very generally misunderstood his function. We have been too prone to let the obstetric case go on into labor with the probabilities uncalculated; let nature do her utmost, let the original attendant do his best, and then call consultation to advise how best to get out of the mess. How much wiser is the policy of that general practitioner who, when in doubt as to an intracranial condition or a masked luetic lesion, refers the patient for examination of his eye grounds or for laboratory findings to an expert, who returns him again with the findings to the general practitioner for treatment; or that general practitioner who, when in doubt as to his diagnosis in a case of suspected early pulmonary tuberculosis, refers his patient to a physician of wide experience on those lines who after examination returns him again with the interpreted findings for treatment.

And would not this be the logical method to follow in obstetrics? If a general practitioner who, by the necessities of his geographical location or through the fear that by letting go of the obstetrics of a given family he will let go of the family as well, feels constrained to practice obstetrics and when called upon as above outlined to prognosticate the difficulties of a given case finds himself in doubt either as to the findings or as to interpretation, would at the time of this examination, some weeks or months before the expected event, call to his assistance advice and consultation so that plans might be calmly made in advance for whatever procedure was expected, normal or abnormal, the end results would, I am sure, be more satisfactory both to the general practitioner, to the patient and to the consultant as well. For it is an injustice to all concerned to leave the determination of conditions and the preparation for procedures, as well as the possible execution of the same, till the patient is worn out and the calm, scientific judgment of the attending physician disturbed by the tribulations of a protracted and unsuccessful labor.

It is the distinguishing point of major obstetric surgery that the morbidity and mortality as well, of both patients, mother and child, varies far more with the time of the undertaking than with the skill of the operator, assuming in the latter of course a reasonable knowledge of asepsis, anatomy and general surgical procedure. Measures which when undertaken at a time of election by undistinguished men show a minimum of morbidity and of mortality will, on the other hand, give most undesirable results when undertaken, even by the princes of surgery, on obstetric patients exhausted or with lowered resistance to infection, if they be not already infected, by long trial of the actual test of labor.

For which reason it seems far more important to me that a community should develop a competent obstetric diagnostician and consultant than that it should develop a surgeon particularly devoted to obstetric work. If the community be large enough to

afford both, well and good. But as a general proposition you will not find a surgeon particularly qualified on the obstetric side except in great centers of population which provide great, free obstetric hospitals, while any community can develop a man sufficiently superior in diagnostic and advisory powers to very materially aid the mass of the practitioners of that community in the difficult parts of their obstetric work. Given such a consultant, competent to determine, predetermine as far as possible, obstetric probabilities and necessities, the competent general surgeon can do what the consultant or the general practitioner can not do himself.

A great man once said that there were three kinds of knowledge of operative procedure, the knowledge of how, of when, and of why to operate. Very many surgeons possess the knowledge of the how and woefully few knowledge of the when and the why of the matter. And particularly so in obstetrics. You will note that I speak of a community developing a competent diagnostician and consultant, and it may be a new idea to you that the profession of a community is really responsible for the development in it of a man particularly qualified in any line. True, there are certain lines of so-called special work where a physician, with or without adequate special preparation may, within ethical limits, so tickle the public by his graces of person or of manner as to develop a big business independent of the opinions or desires of the profession in the matter; and on the other hand, in some lines a man may particularly qualify himself for special work, come into a community that really needs a consultant on that line, and then he driven into practically abandoning his chosen line and burying himself in general practice, because of the apathy if not the hostility of the profession.

And all this is particularly true of the obstetric consultant for two reasons:

First, it is a line where, because of the ignorance of the public, it is particularly easy for the illy qualified practitioner of pleasing manner and specious pretext to attain a large hold directly on the public. Of this type was a physician, since gone from among us, who attained great popularity in a family of average intelligence by professing that he had materially aided the progress of a normal first labor by manipulating, massaging and dilating the cervix with his hand (and this not as preliminary to forced delivery, but as a routine). The highly qualified practitioner who attended the second labor in that family, and who with a due hesitation at unnecessary intravaginal manipulations let well enough alone to the normal termination of a normal labor, is still below par in that family because he did not assist the patient like dear Dr. —. The first mentioned physician did a large obstetric business, but would hardly be turned to for consultation and advice thereon.

On the other hand, a man with more than ordinary obstetric knowledge and interest, trying to think and read on those lines and, generally speaking, a candidate to become what the community probably needs as outlined above, might easily, because of the general inadequacy of obstetric remuneration and the ordinary difficulty of breaking into obstetric practice except among a class in the com-

munity where pay is particularly poor, starve back to general practice, interest and thought unless supported in his chosen line by the thoughtful physicians of the community. Under the customary plan of calling an obstetric consultant only when the case has gotten into difficulties, said consultant when called is generally chosen not because of his knowledge of obstetric diagnosis, or indeed for his special knowledge of any branch of that subject, but because, being a man particularly qualified on some other line, maybe surgery, maybe internal medicine, perhaps diseases of women, and notable because of that other line, he is called in to the obstetric case because of the effect of his overshadowing reputation on the family or on the general practitioner. And it is obvious that with the growth of the new thought in obstetric consultation, the general practitioner must not call the above suggested type of consultant, but the man perhaps, probably indeed, less well known to the public and to the patient's family, who thinks primarily obstetrics. And if the profession in any community, large or small, will consistently in such cases call in that member of the fraternity who in their opinion is most constantly thinking scientific obstetrics, such member will in a very few years, if he have the desire to continue in that line as well as the stuff to make good therein, find himself a real obstetric consultant.

As suggested above, the obstetric specialist, in the sense of the physician who does nothing but obstetrics, can hardly in the near future exist outside of the large cities. But I do not see why a community not large enough to afford an adequate living to a physician doing obstetrics alone should, because of that fact, deny itself the advantages of an obstetric consultant. The primary objection to referring special work to a specialist who still remains in general practice is not the mere fact that he still takes general cases, but because, if he is not a person of high ethical standard, he may keep the referred patient after the special work is done. Yet that the objection is not insuperable is shown by the fact that we have in this society physicians who routinely refer patients for surgical and other procedures to other members of the society who, while doing and thinking special work, continue to do general. Yet the sky does not fall. And I do not see why in any community affording a dozen or more physicians, if the profession has developed within itself an obstetric consultant whom they have found competent and ethical, and who, while thinking primarily obstetrics, is still compelled to continue some lines of general practice, it would not be practicable for those physicians who "loathe obstetrics" and who would abandon it entirely but for the fear of thereby detaching from their clientele the family of the parturient as well, not only to call the obstetric consultant for advice on cases which the general practitioner with loathing continues to confine, but to actually turn the cases over to the consultant and say in effect:

"I have attended your family a long time and have in that time often referred to other physicians those subjects which had become too great a tax on my time or which I felt they were better able than myself to consider. To these subjects I have now added obstetrics and I strongly advise you to arrange with Dr. — (the qualified man) to attend the

expected confinement in your family. After the baby is born and the mother is up again, I will be glad to advise with you as usual about the further progress of mother and child."

In nine cases out of ten the patient would go as directed and in all nine would come back again because the ethical consultant would not keep them, even if importuned to do so. A perfectly ethical, competent obstetrician, though not at first exclusively a specialist, would be able more and more to devote his time and thought to the matter with advantage financially to himself and perhaps arrive ultimately at a point where he might decline general work entirely and become a true specialist. While the other physician who "loathed obstetrics" would by this plan of reference lose less sleep than if he had followed the old plan of hanging on to his obstetric cases himself to prevent losing the families, and lose less money than if he had refused obstetrics without referring the cases and had his families scatter to the four winds of heaven.

I expect some of you to shy at the idea of referring patients to a man who is still in general practice and not yet exclusively a specialist but I believe that, whatever may be desirable in other lines of specialization, the peculiarities of obstetric practice demand it. It may be possible for the occasional rich young physician to qualify himself as an obstetric specialist and then sit down and wait as a specialist till the special practice fills his time and purse. But the average physician qualified as an obstetric consultant would starve in any community of medium size if he tried from the first to exist by obstetrics alone. If the consultant be honest it will harm no one for him to remain in general practice, and if he does not so remain there are few communities that will for many years afford him enough pay work in the specialty to keep the wolf from the door.

Briefly, the profession must either do without a consulting obstetrician in medium sized communities; or find one who can, like a groundhog, live off of his accumulated fat during the lean years; or content themselves with a consultant and specialist who ekes out by general practice. But it all turns on absolute honesty on both sides. The obstetrician must resolutely refuse to keep a family into which he has come as a referred obstetrician; on the other hand, the prosperous physician who is referring must refer all or none. He can not expect an obstetrician to try and specialize, even in part, if the latter is to get only those cases where obstetric fees are small while the original attendant holds on to all those which pay well.

Earlier in this paper it was stated that my purpose was an attempt to outline a plan by which, in the first place, in any community of a dozen physicians or more, those general practitioners who wish to give up obstetrics may do so without losing thereby their family practice and, in the second place, those physicians who wish to continue obstetric practice may do so with a minimum of disadvantage to the obstetric patient. To what extent the plan herein outlined for developing from among the general practitioners in our communities of the second class and smaller obstetric consultants who may ultimately grow into obstetric specialists meets the indications I leave to your consideration.



## TREATMENT OF RODENT ULCER.\*

By D. FRIEDLANDER, M. D., San Francisco.

In considering the treatment of rodent ulcer, I shall refer only to the basal cell form of epithelioma, in contradistinction to the prickle cell form, which is usually accompanied by metastases.

The various methods employed may be divided as follows:

- 1—Caustics.
- 2—Surgery.
- 3—Physical Agents.

Before considering these agents, it might not be inapropos to mention the treatment of subcorneal warts, or keratoses, which, in the aged, are often the precursors of skin epitheliomata. These are easily removed by the action of salicylic or pyrogallie acid ointments and, by the removal of these early lesions, we might prevent the formation of growths which would ultimately result in much disfigurement and danger.

First, I will consider the action of caustics, and, for this purpose, will divide this agent into two classes—the first consisting of weak caustics, typified by carbolic acid and nitrate of silver,—the second class, i. e. strong caustics, as exemplified by zinc chloride, caustic potash, arsenious acid and the actual cautery.

The first class are absolutely contraindicated, since they act only superficially and as intense irritants and do not destroy sufficient tissue to eradicate the growth. I have repeatedly seen comparatively benign epitheliomata transformed from slowly growing lesions, into flourishing, highly malignant growths, by the repeated application of the nitrate of silver stick.

On the other hand, the application of the stronger caustics is often followed by beneficial results and, if properly used, not infrequently eradicate the disease; but they have the following objections:

- 1—They are exceedingly painful for several days.
- 2—It is not easy to confine their action to definite areas, as when working on the edge of the eyelid or the inner canthus.
- 3—The cosmetic result leaves much to be desired.
- 4—There is no positive way of telling whether or not the entire growth has been removed, and the malignant tissue remains in situ until the separation of the slough.
- 5—The lesions are slow in healing.

The one great advantage of this class of agents, lies in the fact that they seem to seal the lymphatic channels of the skin against further travel of the

cancer cells, and, in this respect, an incomplete removal by a caustic is productive of far less harm than an incomplete surgical operation.

The combination of surgery and caustics is far more desirable, and Sherwell (*Jour. of Cutan. Dis.*, Oct., 1910), has brought forward a method of treatment, in which he vigorously cures the lesion, and follows this by the application of a 60% acid nitrate of mercury, and reports excellent results.

Surgery is the method to which we look for the best results in these cases, and there can be no doubt that a surgical operation, properly performed, cutting sufficiently far from the borders of the growth to insure its entire removal, will mean its entire eradication.

But, unfortunately, there are other factors to be considered; imagine a woman with a slowly growing epithelioma, of several years duration, on her eyelid, or a similar condition on the bridge of her nose, or on the inner canthus of the eye, conditions, where a complete surgical removal means a tremendous deformity, and this brings before us the momentous question, with which every dermatologist is confronted, the question of cosmetic result.

Hence, it is the tendency in these cases, the great majority of which occur on the face, for the surgeon, possibly against his better judgment, to minimize the loss of tissue and so decrease the deformity. But, on the other hand, incomplete surgical ablation means a recurrence, often worse than the original lesion, since we never know how often the knife cuts through layers or proliferations of cancer tissue and the growth is so spread through the open lymph channels.

Bloodgood (*J. A. M. A.*, Nov. 5, 1910), states "incomplete surgical operation is more dangerous than any other method employed"; the Mayo brothers operate with a cautery on all inoperable cancer lesions, and Halstead notes "the rapidity with which incompletely operated growths recur as compared with those treated by caustics; and the relative freedom from cancer infiltration in lesions incompletely operated with caustics, as compared with similar surgical work."

To these points must be added the fear of the patient for the knife, and the fact that the age of the patient, and the general condition, often preclude the general anesthetic necessary for a complete surgical operation.

Let us then see what results can be obtained from physical measures, and first I will consider the X-ray, in which we have a most powerful agent against malignant disease of the skin. Pusey (*J. A. M. A.*, Nov. 5, 1910), reports 72% of successful results after 3 years, and the freedom from pain, the absence of any operative procedure and the cosmetic result bring it forward as a most desirable mode of treatment.

But it also has its failings, it does not remove the malignant tissue, presumably destroying in situ by selective action of the rays, and in my experience, is applicable only to those forms of the disease where the lesions have soft borders. The rodent ulcers,

\* Read before the Sacramento Society for Medical Improvement, February, 1911.

having hard indurated edges or surrounded by perles, are refractory to the X-rays and, while the ulcer heals, the border often persists and forms the basis for a recurrence, unless removed by other means. As an indication of the importance of this point, I would quote Lenglet and Sourdeau (*Annales de Derm. et de Syph.*, Feb., 1909), who reported 59 cases of rodent ulcer treated in Brocq's clinic, where the method employed is X-ray preceded by energetic curettement.

In such cases, in which no result is obtained following 5-6 radiations, other means are employed. Lastly, it might be stated, that inadequate doses of the X-ray occasionally increase the activity of the growth.

Radium acts very much as the X-ray, results reported by Abbe, Wickham and others, placing it on a par with that agent, although Bulkley considers it inferior. The main advantage is the shortening of the treatment, but, unfortunately, the scarcity and price make it almost impracticable for use unless a hospital be endowed with it, or it can be rented, as on the continent.

Electrolysis does not destroy a sufficient amount of tissue to be effectual, and has the further disadvantage of often stirring up the growth to active proliferation, while carbon dioxide snow is effectual only in extremely superficial growths.

The high frequency spark has attained quite a prominent position in the treatment of these growths, Czerny, Pozzi, de Keating Hart, Rivere and others reporting excellent results in skin growths, and palliative effects in non-operable and recurrent deeper malignant lesions; and, it is my opinion that this agent, combined with sufficient surgical procedure to grossly remove the malignant tissue, is the most desirable one we have to hand.

The ideal treatment then, is one, that will, as far as possible, occlude all avenues of reinfection before operation—remove the malignant tissue—prevent a reinoculation of the remaining tissue—and produce the best obtainable cosmetic results; and from my personal experience, I believe that fulguration, i. e., the high frequency spark, fulfills these indications better than any other agent we have to-day.

The procedure is as follows: if the growth be of sufficient size to warrant it, and the patient's condition permits it, a general anesthetic is given, but, generally, rovecaïne 1% to 2%, injected subcutaneously, is sufficient; and, in small growths, even this is not necessary, since the spark produces a certain amount of anesthesia.

The apparatus necessary consists of any high frequency coil (preferably of the open coil type), capable of throwing a unipolar spark of from 4 to 6 inches, to which a pointed metal electrode is attached. The tendency of the spark to strike the higher surrounding elevations, is overcome by the use of dentist's modeling compound, a mask of which is molded to the lesion and the surrounding parts, and cutting out, widely, the impression or excrescence shown on the under side of the mold. This acts as a non-conductor and allows the spark to strike the opening only.

The patient should not be placed on a metal table, as burns will result wherever the body comes in contact with the table and, if a general anesthetic is

used, ether should be avoided on account of its inflammability; and, likewise, metal anesthetic masks should not be used.

The spark is played on the lesion for about 2 to 5 minutes, during which time, the fulgurated surface becomes so soft and mushy that it can be easily removed with a curette, and this should be thoroughly done, especially on the borders of the growth. The lesion is then again sparked for 3 to 5 minutes, no attempt is made to close the wound or lessen its size, and a compress applied.

There is practically no hemorrhage during the entire operation, hemostasis being due to the vaso-constrictor action of the spark and the formation of thrombi in the mouths of the blood vessels, thus preventing the transportation of any cellular emboli by the vascular route.

The immediate result of the treatment is a certain amount of edema, which persists for three or four days, together with a serous exudate of extraordinary abundance containing numerous polynuclear leukocytes and red blood corpuscles; and this is followed by a rapid repair by granulation, characterized by Zimmern (*Tribune Med.*, Paris, 1909, N. S., p. 85) as "a veritable autoplasmic reconstruction, which bears evidence of a remarkable trophic activity of the skin, most satisfactory from a cosmetic standpoint."

We have then, theoretically at least, occluded the lymph channels before curettement, removed the malignant mass, and sealed again, by the spark, the lymph channels. Further, the tremendous outpouring of serum washes out any remaining cellular detritus, and the inflammatory action, resulting from the procedure, causes an increased local leukocytosis and increased resistance; and the formation of resistant new connective tissue.

The action of the high frequency spark may be summed up as follows: it has a selective action on the cancer cells, as have its sister treatments X-ray and radium, but, as to whether this is a true selective action, or the spark simply destroys the cancer cells, because the resistance of these soft immature cells is less than that of the surrounding tissue, I am unable to state.

It is an intense stimulant to the remaining tissue, producing exuberant healthy granulations, practically replacing the lost tissue and producing the desired cosmetic result. While certain elements of a caustic nature enter into the treatment, I do not believe the action of fulguration is essentially that of a cautery, since, following the suggestion of De Keating Hart, I have combined it with a C O<sup>2</sup> spray, producing a cold spark, with equally good ultimate results; but the C O<sup>2</sup> spray has the disadvantage of preventing the cessation of bleeding, and I have discontinued it.

The following conclusions are based on a series of 68 cases, covering a period of 5½ years, during which period I have had 2 recurrences and 1 failure, all of which I attribute to poor technique; and I would say, without desiring, in the least, to belittle the success of surgery, the X-ray, radium, or other agents, it seems to me that fulguration, properly performed, offers, to-day, the best results, both from a curative and cosmetic standpoint, in the treatment of rodent ulcer.



**ASSOCIATION OF MILK COMMISSIONS.**

The California Association of Medical Milk Commissions will hold a meeting at Santa Barbara during the meeting of the State Medical Society.

The meeting will be largely devoted to a consideration of the problem of Bovine Tuberculosis and its relation to Public Health. Papers on this subject will be read by

Dr. Geo. S. Baker, Inspector in Charge, Bureau of Animal Industry, U. S. Dept. of Agriculture.

Dr. C. M. Haring, Prof. of Veterinary Science, University of California.

Dr. Chester Roadhouse, ex-U. S. Meat Inspector and Expert of the San Francisco Medical Milk Commission.

Prof. M. E. Jaffa, Prof. of Agricultural Chemistry, University of California, and others.

LEWIS SAYRE MACE,  
Chairman Executive Committee.

**RAILWAY SURGEONS****OSTEOPLASTIC OPERATIONS IN PATHOLOGIC BONE CAVITIES.\***

By D. D. CROWLEY, M. D., Oakland.

For many years the repair of cavities in long bones following the usual surgical procedure of removing dead bone or pus has been slow, uncertain and unsatisfactory both to the surgeon and the patient. My own personal annoyance in this field of surgery, for a very long period, has induced me to give the subject more than ordinary attention and has developed a technic that in my experience has shortened the period of repair over other operations, for this purpose.

The operation leaves no unsightly scar and but little depression of the bone surface. In leading up to the description of the operation, I would like the privilege of pointing out a few of the changes that take place prior to the formation of a cavity in a bone.

It is not within the scope of this brief paper to introduce in detail the pathological conditions leading up to the inflammation and the death of bone. It might not be amiss to say that any pathogenic germ necessary to inflammation and suppuration in other tissues may affect bone in like manner. Any disease that lessens the vitality of bone marrow may lead to a osteomyelitis, providing pyogenic organisms are present in the circulation of blood. Under like circumstances the same organism may excite inflammation of bone directly through a wound in the vicinity. The tubercle bacilli may invade an injured bone and extensive abscesses follow, entirely destroying the soft medullary structures and invading and atrophying the compact bone, forming sinuses through it and the external tissues.

Lexer and Bevan divide the infections of bone into three classes: Class 1—In compound fractures, amputations, joint resections, osteotomies in which medullary cavity or surface of bone stripped of periosteum is directly exposed to infection. Class 2—Suppurative inflammation of surrounding soft tissues may extend secondarily to bone. Class 3—The infection may be carried through blood by bacterial infected emboli.

The same authors in speaking of hematogenous

suppurative osteomyelitis say that it may be caused by the deposit of bacteria in the bone marrow; the lodgment of infected or bacterial emboli; fusion of clumps of staphylococci in the finest capillaries.

The bacteria of inflammation and destruction of tissue may be carried by the blood directly, to the medullary cavity of bone and excite an osteomyelitis; thus inflammation extends from without, attacking the Haversian canals, obstructing the blood supply to the compact bone and causing total death of an area of bone. Also may a periostitis extend to the medullary canal causing death of bone. The pathological conditions brought about by inflammation of the soft structures of the body, are in no material way different from those of inflammation of bone. However the remedying of the fault is vastly different.

In a pathologic bone cavity there is an unyielding, uncollapsible wall. Walls so thin and friable, following the evacuation of pus, the removal of sequestrum, the shallowing of the bone cavity to assist speedy repair, that it would take but little force to fracture the shaft at the operative site.

Bone cavities have been treated during the past quarter of a century in different ways for the purpose of forming new tissues that would fill them and thereby make a strong bone and a slightly surface over the repaired area. Sponge grafting had its day and it did hasten repair by forming a frame work for granulation tissue. It was certainly better than no medium for that purpose. In another method the blood clot was allowed to fill the bone cavity after the soft parts were sutured. The clot was to act as a support to the granulation. The clot being a culture medium it frequently failed, as very often many of the bone cavities were septic. Flaps of skin have been used from the sides of the wound, forced into the bone cavity and held there by nailing them to the bone or by inverse suture. A septic condition would too often prevent repair and thereby sacrifice the flaps that were intended for that purpose. Another operation was the breaking of the edges of the involucrum, forcing the fragments into the cavity.

A few years ago I approached this method, by splitting away the edges of the bone, with a covering of all the soft parts including periosteum and forced the two masses into the bone cavity. This was followed by rapid repair as the tissues were aseptic and months had elapsed since initial operation.

Ten or twelve years ago plaster of paris was used to fill cavities as well as other non-absorbable substances. They have never become popular with surgeons.

Bone chips introduced to the profession by Senn, have met with success in aseptic cavities.

The Mosetig-Moorehof method is said to be one of the best recent methods of treating bone cavities. This method consists in filling the prepared bone cavity with a melted material which will not act as a culture medium or as a foreign body and is gradually absorbed as the repair work fills the bone and encroaches upon it. This material consists of 60 parts iodoform, 40 parts spermaceti, and 40 parts oil of sesame. (See De Costa's Surgery, p. 510, 6th Edition). A capillary drain is introduced and

\* Read before the Pacific Association of Railway Surgeons, August, 1910.

the periosteum and skin sutured over it. This method might be acceptable and prove very efficient in aseptic bone cavities, and it recommends itself to me as being the best of the methods already in the hands of the surgeon. The antiseptic in the material used does not permit us to altogether oppose its use in septic cavities where antisepticising and drying has been carefully done in preparing the cavity before its use. Well known surgeons in the East recommend it favorably. Dr. Milton of Oakland has been successful in two cases out of three. In the 3rd case (unsuccessful) he was unable to dry the cavity.

In the beginning of acute osteomyelitis, accompanied by extensive bacterial invasion, an incision may be made through the soft parts to bone. The skin and periosteum should then be separated from bone and retracted. Senn opposes the use of trephine and advises the chisel. The medullary canal is entered and if the inflammatory invasion is extensive, several small apertures are made rather than the removal of a large portion of bone covering the inflamed tissue. Frequently this inflammation presents itself to the surgeon in the intermediate stage when there is a purulent infiltration into the soft structures; the pus should be freely evacuated by incision and drainage and small openings should be made into the bone for the purpose of draining its interior. In the stage where the sequestrum is separated from neighboring structures, or where a cavity of the bone is filled with pus, and the involucrum is sufficiently strong to give necessary support to the bone the operator is called upon to remove the offending sequestrum, pus, granulation tissues, honeycombed bone and leave the cavity in a condition to undergo speedy repair. This is the stage where the operative interference is expected to be followed by repair, a repair that has been distracting in its slowness. In this stage I recommend the following operation:

In reaching the bone cavity the removal of a part of the bone wall in no material way differs from methods already in use by the surgeon, but I do maintain that the steps I follow in preparing and arranging the tissues for the purpose of rapidly occluding the cavity are so far as I know original with myself and have given me greater satisfaction in the rapidity of repair, strength of limb, and agreeable appearance of scar, than any other method that I have practised.

After the usual preparation of the skin has been carried out, I make an incision over the painful part of the bone, which is usually enlarged, down to the bone, or over a sinus leading from the bone. The periosteum and overlying tissues are separated from the bone en masse and are drawn well to the side by retractors. I have used the small trephine for the purpose of entering the medullary cavity but have frequently discarded it for the chisel, at other times used the chisel from the first and found it more satisfactory in cutting through the involucrum. The sequestrum is then removed, granulations curetted, bone curetted, sometimes a rounded chisel is gently used for removing the roughened interior. I leave no roof to the cavity, the shaft which in the beginning might be considered a tube is turned into

a trough by cutting away the roof and part of sides of the shaft.

In a tubercular abscess of bone I have removed over the cavity of the bone, at least  $\frac{1}{2}$  of the circumference of the shaft. In a sarcoma of the medulla of tibia more than  $\frac{1}{2}$  of the circumference of the shaft was removed, the cavity of the remaining bone is sponged with carbolic acid followed by alcohol. All of the tissues are cleansed with gauze sponges and the cavity or trough in the bone is packed with iodoform gauze.

The end of the gauze is permitted to appear external to the skin at the most dependent end of the operative field, that it may at some future time be removed. In the lower one-third of tibia the gauze makes its exit and shows on the surface near the ankle. The gauze is so packed into the bone that the upper end is thoroughly filled and then inch by inch the folds of the gauze fill the entire cavity to point of exit. This method of packing from the remote part of cavity to the dependent end, facilitates its subsequent removal.

The cavity of the bone, now firmly filled with iodoform gauze, the skin and periosteum are next sutured; the skin and periosteum of one side is carefully stitched to the skin and periosteum of the other, with interrupted silk-worm sutures. If the skin and periosteum were greatly separated I would advise the periosteum to be first closed with catgut and the skin with silk worm gut. The skin and periosteum are not sutured at the most dependent part of the wound as the end of the iodoform gauze packing separates them and appears on the surface of the skin. Several layers of iodoform gauze are laid over and in contact with the wound; this is covered with sterile gauze. Bandage is then applied and the part put at rest. In four or five days the outer dressings may be removed and renewed. Between a week and twelve days following the operation, the gauze may be removed from within the bone, cavity cleaned out with moist gauze sponges and lastly with dry iodoform gauze. The cavity is again packed with iodoform gauze and surface cared for as in the first dressing.

The number and frequency of these dressings depend very much upon the septic or aseptic condition of the bone cavity. The surgeon must be guided greatly by the soiling of the external dressings. He may at first be compelled to change the bone gauze every four or five days. When the discharges are very slight, every week or ten days. In from fourteen to thirty days the bone cavity becomes very much smaller and but very little gauze can be used for packing. At the end of ten days to two weeks the silk worm gut sutures are removed as there is a good union in the periosteum and skin. When the cavity is free from inflammatory tendencies and reparative granulation tissue is sufficient and partly fills the cavity of the bone (about 30 days from operation) and when the discharges are only the result of repair, when it becomes difficult to introduce iodoform gauze for bone packing and drainage, it is then time to collapse the movable or flexible part of the wall into the immovable. The periosteum and skin that have roofed the bone cavity should now be utilized for the purpose of hastening repair. The skin and periosteum are cut through the first



line of incision; the same line of incision that had been so carefully sutured from drainage opening to uppermost part of bone cavity, and these soft yielding, elastic structures are permitted to fall or are gently pressed against the repairing tissues in the bone cavity, with little or no separation of the edges. Dressings are now applied over this secondary wound, without special cavity or sub-periosteal drainage. In a week or ten days the soft structures are usually repaired. There may be still a slight opening where drainage had been carried on from the first.

The advantage of this osteoplastic procedure over others is that the bone cavity can be treated safely until repair is well under way; during which time important structures, skin and periosteum are preserved until they are incised and collapsed into the bone cavity for final repair. The suturing of the wound in the periosteum and skin permits their repair, and when incised and collapsed these structures are well nourished, for the reparative process continues on the under surface of the periosteum while granulation tissue is forming in the bone. The skin and periosteum were sutured to prevent them from retracting and atrophying. When they are not sutured they are subsequently of little use in covering the defective bone. Preserving the skin and periosteum until the cavity is clean and repair well under way permits them to be utilized for final repair, shortens the usual surgical service of three, four, or five months, to one month, possibly a month and a half or two months. The real work of the surgeon is about 30 days.

#### Discussion.

T. W. Huntington, San Francisco: Dr. Crowley has introduced a subject of extreme importance in connection with bone surgery. There are few of us who have had our minds centered on this subject who have not had much to do with bone cavities. I am sure we have had our patients tired many times by the extreme slowness of these things to close up and get well. In procedures of this kind the main point is to get the cavity opened up in the first place; the wound should be packed and granulation watched for. To begin with I make a fairly good opening, cleanse the wound and wait for an opportune time for incising. As far as sepsis is concerned, take the thickening flaps, remove a little more of the bone, and hold the bone there. I think that Dr. Crowley's plan has some advantages, one that it prevents retraction of the flaps during the cleansing of wounds. Without careful handling there is danger of a septic condition during the primary and up to the secondary procedure. The whole thing rests in getting your original cavity thoroughly cleaned up. There is a thing which is frequently done in these cases which is a mistake and that is the long continued packing of these cavities. You will see these cavities packed and packed and packed for weeks and months when the packing could have been removed very much earlier and the process of repair hastened. We have not heard enough about the over-packing of wounds; it does not stimulate repair, it precludes repair.

A. Miles Taylor, San Francisco: This paper which Dr. Crowley has presented is a very interesting one to me. Some months ago I had some cases of bone trouble with which I had a great deal of difficulty in regard to the treatment, and through the advice of Dr. Crowley I pursued this procedure which he has mentioned to-day and in two of the cases I met with utmost satisfaction. Both cases I have discharged cured, one case within two months after the operation, the other six weeks after the operation;

one was of the humerus and the other the tibia. I have to thank Dr. Crowley for suggesting and advising this method of operation. In the future I expect to pursue it in all cases of that nature that come under my care.

A. W. Morton, San Francisco: I am very much interested in the paper which the Doctor has just read. The methods pursued by most of us have been to open the wound, pack it and drain it; by doing that method our periosteum retracts, becomes torn and we are unable to cover the cavity. By stitching the periosteum over you get satisfactory drainage, and after getting the cavity in aseptic condition you get healthy granulation in the wound from the bone or from the periosteum. If the cavity at the time of operation can be thoroughly cleansed, as it often can, fill the cavity at the time. After thoroughly cleansing the cavity I then clean out with iodine and fill with paraffin that has been heated to 130° F., poured in hot so that the cavity is filled; it fills the space and becomes consolidated. Stitch the periosteum over it, close the skin without drainage, and if the cavity is thoroughly clean, you will have no trouble whatever. As far as I know in the literature I think this is entirely original and it is certainly to my mind a great advancement. I think the Doctor is to be congratulated on his paper.

#### REPORT OF A CASE OF ANEURYSM OF THE ABDOMINAL AORTA, WITH OPERATION AND INTRODUCTION OF WIRE.\*

By J. H. O'CONNOR, M. D., San Francisco.

Family History: J. T., aged 53, married, 2 children, one died in infancy, the other is living and in good health. Father died at 48, cause unknown. Mother died at 47 of asthma.

Previous History: Smoked and drank moderately but does neither now. Had a chancre when about 20 years old, no distinct history of secondaries beyond a rash on left leg. Took treatment for one year, has had what he termed rheumatic pains all over the body for the last 8 years. Pains were dull in character and not confined to the joints.

Present History: Until 8 years ago patient was perfectly well; at this time he experienced pain of a dull, continuous character in the region of the navel. He consulted a physician who gave him pills (probably codeine) and the pain was relieved while taking same; had the prescription refilled on several occasions with the same result; some time ago stopped taking the medicine and since then has been suffering a great deal. The pain is less severe when his bowels move freely. About 18 months ago he noticed a swelling in the left hypochondriac region, and when feeling same noticed a pulsation. The tumor has slowly increased, he becomes dyspneic on slightest exertion, complains of coldness in the feet, has lost weight but does not know how much, feels distressed after eating and the pain in the region of the navel is much aggravated.

Examination: Fairly well nourished but has a peculiar yellowish color, pupils equal and react to

\* Read before the Pacific Association of Railway Surgeons, August, 1910.

light and accommodation, tongue moist and clean, chest negative. Just below left costal arch there is visible a pulsating tumor, about the size of a large orange lifting the skin at this point about an inch above the level of the surrounding area. Auscultation discloses a loud whistling murmur, systolic in time, and transmitted down along the aorta.

Admitted to Southern Pacific Hospital on Feb. 11th, 1910, put to bed and given K. I. in increasing doses without any improvement or relief of pain. The pain got so severe as to necessitate his being kept under the influence of opiates more or less all the time. On April 13th, a laparotomy was performed. The aneurysm was quite large, having a base of about  $4\frac{1}{2}$  inches and involving the celiac axis. By blunt dissection I reached the sac above the stomach and through a spinal anesthesia needle introduced 10 feet of fine silver wire.

Recovery from the operation was uneventful. He is entirely free from pain, has not taken any opiate since a few days after the operation. There has been a very marked diminution in the size of the aneurysm and at this date it is still decreasing. While the case cannot be regarded as a complete cure as there is a bruit present, showing that there is still considerable enlargement of the vessel beyond its normal caliber, yet the patient considers himself well, has a good appetite, gained 15 lbs. in weight and is going to return to work in a few weeks.

Patient exhibited.

#### "HOOKWORM DISEASE AMONG MEXICAN TRACK LABORERS."

By J. W. COLBERT, M. D., Albuquerque, N. M.

[Note: The following discussion of Dr. Colbert's paper, printed in the February Journal, was mislaid and so did not appear with the paper.]

##### Discussion.

Stanley P. Black, Los Angeles: The subject which Dr. Colbert has just treated is one which has been interesting the medical profession, especially of the southern states, for the past few years; it certainly is one of the greatest scourges of the southern states to-day. We in California, Arizona and New Mexico must always be on guard against this disease, for it will spread through the Mexicans and Orientals to the white. Unless we guard against the infection it is going to be as great here as in the southern states. The Mexicans and Japs are great soil polluters, and more so in railroad work as the railroads do not provide suitable toilets, and the employees are allowed to defecate along the roads or wherever they may happen to be. All through this state, and especially in the southern part of it, the sandy, moist soil and the temperature is favorable to the dissemination of this disease. We are surely going to spread this disease unless we are on our guard now. In Southern California I saw two Mexicans, fruit-pickers, who had the disease, and these were the only cases that I had seen in 5 or 6 years. It is necessary to understand the morphology of the egg even more than to understand the morphology of the parasite, for if they die they disintegrate before they reach the anus; we must know the characteristics of the egg, with the four divisions in the shell. These cases are nearly all anemic, there is general muscular weakness and a noticeable anemia and this is more difficult to tell in the Mexicans and Japanese than in the whites, and when we do find muscular weakness and that the patient is anemic we should always examine the blood. If we find there is an increase of the eosinophiles we should at once investigate the stools and the egg. The method given by Dr. Colbert is a good one. It is up to the

railroads, it seems to me, to prevent the spread of this disease in this country.

J. W. Jesse, Santa Rosa: I have seen 2 cases of this disease during the last six months; one is dead, the other, my own case, living. One was the case of a young girl 17 years of age, a resident of San Francisco, at intervals visiting her grandfather in Sonoma county. She was a waitress in a hotel. For the last 8 months has had pain over the abdomen, neuralgic pain over the body, and pain localized around the region of the appendix, and the result of this was that I did an appendectomy. I removed the appendix and found it full of hookworm, and this is the first case that I have known where hookworm was found in the appendix. She has taken two courses of thymol; I am still treating her and she still has some eggs. The appendix was absolutely denuded of its mucous membrane by these parasites, it was inflamed and congested. I made my diagnosis by finding the hookworm.

Robert T. Legge, McCloud: Last year a man in Amador County was referred to me for tuberculosis. Patient was very weak. I made a careful examination but found no lesion in the lung. Blood examination being made and eosinophiles found, I thought it possibly a case of hookworm, and upon examining the feces I found the ova. This man has lost his brother and his cousin, both afflicted with symptoms similar to his, the physicians in that district had diagnosed it consumption. The interesting feature of this case was that the man wore shoes and I was not able to find out how he was infected unless it was through the drinking water due to the unsanitary conditions of the Bully Hill mine.

T. C. McCleave, Berkeley: I believe we should all be on the lookout for this disease. In cases where you have present any of the various types of anemia, especially if accompanied by eosinophilia, you should look for the eggs of the hookworm in the stools, and it is probable that they will be found more often than we have anticipated. This is one of the most extraordinary diseases of which we have any knowledge, and its most remarkable feature is its method of entrance into the intestine. It is said to make its way into the body through the skin, chiefly of the feet, thence it is carried by the circulation to the lungs, passes up the bronchi and trachea to the pharynx, then down the esophagus to the stomach and intestine.

S. D. Swope, Deming, N. M.: Dr. Colbert's paper brings up a subject which is pregnant with much interest to the surgeons of New Mexico. Several years ago you may remember that Dr. McBride read a paper on the prophylaxis of *uncinaria* in the Rio Grande Valley. Living in a district where there is but little cultivated land and where sunshine is a most continuous affair, I have seen no cases of hookworm. I believe that Dr. Colbert underestimates the possibility of infection in Southern New Mexico because in Southern New Mexico we are rapidly becoming a farming people and developing a system of irrigation that will take in thousands and thousands of acres of ground, and the people who will be engaged in developing this land will go barefooted to save the price of boots and they could easily be affected by the disease. Another point I would like to bring up and to accent, and that is that suitable provision is not being made for the deposit of feces along the railroad. People living in the southern district go without shoes and with only very sparse clothing, the children play in the dirt and the people eat with their fingers, and their fingers are almost invariably dirty and so through the epidermis of the hands they can become infected. Miners are in the habit of defecating in the different drifts of the mine, thus the soil becomes infected and the miners become infected with the disease. Dr. Colbert has covered the subject so nicely and has called our attention to this matter so well that we who have become tired of looking for the disease will now look more carefully than we would have had we not heard his very excellent paper.



## DEPARTMENT OF PHARMACY AND CHEMISTRY.

Edited by FRED I. LACKENBACH.

### Serums and Vaccines of the U. S. P. and N. N. R.

#### 1. (First of Series.)

The universally acknowledged "specific" in the prophylaxis and treatment of diphtheria, no product is more worthy of first mention in this series than is diphtheria antitoxin.

**Serum Antidiphthericum** is official in the United States and German Pharmacopœias and is described in the U. S. P. as "A fluid separated from the coagulated blood of a horse immunized through the inoculation of diphtheric toxin."

The initial process in the preparation of antitoxin is the securing of a pure culture of diphtheria bacilli from a throat infected with the disease. A pledget of sterilized cotton mounted on a swab is applied to the diseased tissue and smeared on a slant of Loeffler's blood-serum media contained in a test tube. This is placed in an incubator kept at the body temperature for twelve or more hours when numerous, roundish pinpoint colonies will have formed upon the surface. Among these will be found pure cultures of the Klebs-Loeffler diphtheria bacillus. These in turn are transferred by means of a sterilized platinum wire to fresh tubes of blood-serum and again incubated. From these pure cultures other tubes are planted which serve to inoculate large flasks of specially prepared beef bouillon. The planted flasks are now placed in an incubator, where in the course of several days countless millions of diphtheria germs are grown, giving rise to large quantities of diphtheria toxine. Trikresol is added to kill the germs and the culture is filtered through unglazed porcelain to remove the bacteria. The clear filtrate contains the soluble products elaborated by the growing and multiplying germs. This extremely virulent poison is called diphtheria toxin. This toxin is standardized by inoculating guinea-pigs of standard weight with graduated quantities of toxin. The smallest quantity proving fatal to the guinea-pig within (usually) four days, is employed as the basis of dosage in inoculating the larger animals.

Perfectly sound horses are injected subcutaneously with increasing quantities of the toxin, beginning with one or more lethal guinea-pig doses and increasing as the animal acquires immunity, to from 75,000 to 125,000 fatal guinea-pig doses, in volume approximating 0.1 to 250. to 500. cc. of the toxin. The injections are given at intervals of a few days and continue over several months, until the height of the animal's immunity is reached. As the animal develops immunity to the toxin, **antitoxin** is formed. This antitoxin is a reaction product of the living organism. The body cells are attacked by the poison, and if not destroyed, are stimulated in the overproduction of "antibodies" capable of combining with and neutralizing the poison (Ehrlich).

The horse is allowed to rest during a week or two and a preliminary test is made of the antitoxic strength of his blood-serum. If this comes up to requirements the animal is bled by passing a canula attached to a sterilized rubber tube, into the external jugular vein. From five to ten liters of blood is drawn off into large test tubes which are set aside to clot. The serum separated from the clot, filtered, and with an added preservative, is the **Diphtheria Antitoxin** of the market.

The physiological activity of Antitoxin is determined by the number of immunity units contained in each cc. This may vary from 200 units in poor serum, to 1500 units per cc. in high-potency serum. The quality (as also the cost of production) is determined by the number of units contained in a given volume of the serum. The immunity unit is a measure of antitoxic power—not of quantity or volume. It is an arbitrary quantity based upon

physiological test, and depends upon the neutralization of toxin by antitoxin in the body of the guinea-pig, which animal is highly susceptible to the diphtheria bacillus and its poisons.

Under the Act of Congress approved July 1, 1902, all Diphtheria Antitoxin sold in the United States is required to conform to the standard established by the Public Health and Marine Hospital Service. This standard is based on the Ehrlich Immunity Unit preserved at the Royal Institute for Experimental Therapy at Frankfurt-on-the-Main. Antitoxins of foreign production are standardized and sealed in government laboratories before they are marketed, but in the United States antitoxins are tested in comparison with the Government standard unit in the laboratory of each individual producer. This standard unit is prepared and preserved with the most exacting care at the Hygienic Laboratory, Washington, D. C. At intervals of two months about 10 cc. of the standard unit serum is distributed to each of the licensed manufacturers. This is a glycerin solution of dried antitoxin, and properly diluted contains one antitoxic unit in each cc. The standard antitoxic unit is used to standardize a laboratory test toxin which determines that amount (approximately 100 fatal guinea pig doses), which just equals or neutralizes the unit when the two are mixed together and injected into a 250 gm. (standard weight) guinea pig, the life or death of the guinea pig within a period of four days serving as indicator. The strength of all unknown antitoxins is tested against this standardized test toxin.

**Globulin Antitoxin** (Antidiphtheric Globulins)—"Concentrated Diphtheria Antitoxin" represents in a concentrated form the antitoxic elements of the natural serum.

For many years attempts were made to concentrate diphtheria antitoxin. First, the amount of water in the serum was reduced by subjecting the serum to a freezing temperature and removing the ice particles. Then, the evaporation of a portion of the water in vacuo was tried. These proving unavailing, every effort was made to increase the immunity of the horse, to increase the potency of the serum, but there proved a limit to the horse's immunity. Finally, in attempting to isolate the antitoxin from the non-essential elements of the serum, scientists discovered the antitoxic principle to be a globulin, or possessed of such properties that it was precipitated with the globulins. Further, it was demonstrated that the quantitative amount of globulin in the serum of immunized horses increased as the antitoxic strength of their blood increased.

After many processes were elaborated for the separation of the antitoxic globulin from the serum, the following process perfected by Gibson, is the one generally adopted:

A quantity of antitoxic serum is added to an equal volume of a saturated solution of ammonium sulphate. A heavy flocculent, waxy precipitate of the serum globulins results which is separated from the serum-albumin, nucleo-proteids and other inert substances by filtration. The precipitate, containing the antitoxin of the serum, is added to a saturated solution of sodium chloride in which the antitoxic or pseudo-globulin, goes into solution leaving behind the insoluble cuglobulins. These are separated by filtration, the filtrate containing the antitoxin of the serum taken. The antitoxic globulin is then precipitated from the salt solution by the addition of acetic acid. The resulting heavy flocculent precipitate is separated by filtration and dried between layers of absorbent filter paper. The white, waxy mass is then placed in a bag of dialyzing parchment and dialyzed in running water for several days during which the mass gradually liquefies to a fluid resembling the original serum. This is neutralized with sodium hydroxide and the dialysis continued until it is freed from all adhering salts, etc. This fluid is from one-half to one-third less the original volume of the serum and contains nearly all the antitoxin. Sodium chloride then restores the normal

salt content and a preservative is added. Finally, the globulin-antitoxin is filtered through paper, then through a Berkefeld filter, and tested in the same manner as is the regular (U. S. P.) antitoxin.

The product still further concentrated and dried in vacuo, is the **Dried Antitoxin Globulin**. This is intended for the extemporaneous preparation of the fluid antitoxin by dissolving in sterile distilled water. It occurs in 3000- and 5000-unit packages and is useful in emergencies where the natural serum is unobtainable. It contains no preservative and keeps indefinitely.

Many conflicting statements have been made for, and against, the globulin form of antitoxin, the chief arguments in favor being its greater concentration and lessened liability to produce urticaria. On the other hand, the intricate chemical processes involved in its preparation may be destructive to delicate bactericidal properties contained in normal serum. It would seem from the consensus of opinion, and taking into account the high-potency natural serum now on the market, that for large doses—upward of 5000 units and over, the "concentrated" (globulin) form is to be preferred. For smaller dosage, the natural (U. S. P.) serum should fulfill requirements. Since there is economy in extracting the globulins from low-grade, discarded, and out-of-date serum, which would otherwise be a loss to the manufacturer, it would be well for physicians to weigh carefully the respective merits of the two forms in their own clinical experience. Physicians should indicate on their orders whether U. S. P. or Globulin serum is desired.

Antidiphtheric Serum, both U. S. P. and Globulin, appears on the market in bulbs, vials, and most generally in piston-syringe containers, in packages containing 500, 1000, 2000, 3000, 4000, 5000 and up to 10,000 units. The serum gradually loses in power, the loss in one year varying between ten and thirty per cent. The date beyond which the serum will no longer have the strength indicated, appears on the label, but manufacturers generally allow an excess of units so that serum not too long out-of-date can be relied upon in case no fresh supply is available.

The U. S. P. gives 3000 units as the average dose, and 500 units as immunizing dose for well persons. As the main problem presented in a case of diphtheria is the neutralization of a specific toxin, the antidote cannot be too soon administered, and in doses sufficient to neutralize the poison beyond the shadow of a doubt. An excess of antitoxin can do no harm, while in laboratory experiments on guinea-pigs, it is shown that the delay of only one hour after the injection of diphtheria toxin, makes necessary the administration of forty times as much antitoxin as would be necessary with simultaneous injections of toxin and antitoxin. A "given up" case of diphtheria recovered after the use of 160,000 units. Detailed information as to dosage and mode of administration invariably accompanies the package.

The Act of Congress approved July 1, 1902, provides that no one be allowed to engage in interstate traffic in antitoxin without a license issued by the Secretary of the Treasury on recommendation of the Surgeon-General of the Public Health and Marine Hospital Service. This license is issued only after a careful inspection of the establishment, its methods of manufacture, and an examination of its products for purity and potency. It regulates also the sale of viruses, serums, toxins and analogous products, and imposes upon the Director of the Hygienic Laboratory the duty of examining such products. From time to time purchases are made on the open market by officers of the P. H. and M. H. S. stationed in various parts of the country and the products sent to the Hygienic Laboratory where they are examined for potency and freedom from contamination by foreign bacteria and chemical poisons, especially tetanus toxin. If found not to conform to the prescribed requirements, the manufacturer is notified to withdraw that particular lot

from sale and guard against a repetition of the offense.

#### REFERENCES:

- United States Pharmacopeia—8th Revision (1905).  
The National-Standard Dispensatory.  
The Immunity Unit—Bulletin No. 21, P. H. and M. H. S.  
New and Non-official Remedies, A. M. A.  
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Parke, Davis & Co., Detroit, Michigan.

### PROCEEDINGS OF THE SAN FRANCISCO COUNTY MEDICAL SOCIETY.

During the month of February the following meetings were held:

#### Section on Medicine, Tuesday, February 7, 1911.

- 1—Presentation of a Case of Polycythemia with Splenomegaly, and a Case of Alkaptonuria with Pigmentation of Skin and Cartilages, Major P. M. Ashburn, United States Army.
- 2—Exhibition of Cases of Pituitary Disease, Herbert C. Moffitt. Discussed by Drs. Quinan and Moffitt.
- 3—Use and Abuse of Tuberculin, Wm. C. Voor-sanger.

#### General Meeting, Tuesday, February 14, 1911.

- 1—Discussion on paper "Vaccine Therapy" by A. F. Shafer, read at the January meeting. Drs. Rosenstirn, Dannenbaum, N. N. Brown, Kuhlman, Cheney, Arnold, P. K. Brown, Power, Bine, Russ, Clark, Tait, Hunkin, Quinan, Rykogel, Porter, Artigues and Coffey.
- 2—Bovine Tuberculosis in its Relation to Public Health, Geo. S. Baker, U. S. Dept. Agriculture. Discussed by Drs. Rosenstirn, Fleischner, Chipman, Porter, Kuhlman, Baker.

#### Section on Surgery, Tuesday, February 21, 1911.

- 1—Presentation of Case, E. G. Frisbie.
- 2—Demonstration of Two Specimens of Large Vesical Calculi Removed from Female Bladders by Litholapaxy and the Operating Cystoscope, Henry Meyer.
- 3—A Report of Four Cases of Perforating Gun-shot Wounds of the Abdomen, I. W. Thorne.
- 4—A Gauze Sponge Left in the Skull for Over Six and One-half Years, Harry M. Sherman. Discussed by Drs. Rosenstirn and Sherman.
- 5—Two Cases of Acute Perforating Diverticulitis, Chas. G. Levison. Discussed by Drs. Russ, Eloesser, Rosenstirn, Sherman, Levison.

#### Eye, Ear, Nose and Throat Section, Tuesday, February 28, 1911.

- 1—Demonstration of Cases, V. F. Lucchetti. Discussed by Dr. Welty.
- 2—Demonstration of Cases of Tuberculosis of the Eye, E. W. Alexander.
- 3—Report of Recent Ear Literature, Harrington B. Graham.
- 4—Report of Recent Eye Literature, E. W. Alexander.
- 5—The Eye Symptoms of Intracranial Growth, Wm. F. Blake. Discussed by Drs. Pischel, Alexander, McClenahan, Welty, Pischel, Blake.

#### Section on Medicine, February 7, 1911.

##### Exhibition of Cases of Pituitary Disease.

By HERBERT C. MOFFITT, M. D., San Francisco.

In the California State Journal of July of last year I reported several cases of hypophysis disease. This evening I desire to present patients illustrating both hypo- and hyper-pituitarism.

Case I. The first patient is a woman of 29, unmarried, born in San Francisco. She was always a fat baby and child but not abnormally so. At the age of 11 she had severe scarlet fever and her mother says some abscesses formed "between the nose and the mouth." This suggests she may have had some suppuration in the pharynx or possibly in the nasal sinuses. She began to have some headache at the age of 12 or 13 and grew considerably



stouter about this time. At 14 she had a fall from a swing and hurt her back without hurting her head particularly. About this time she menstruated and this occurred irregularly about nine times in all. In the high school a little later she began to suffer very severely from headaches and began to grow stouter. Gradually the eyesight failed and she became almost totally blind. She was examined by Dr. William Hopkins, who said there was a brain tumor. The headaches continued for a long time; she had irregular vomiting, projectile in type; could not see to read. Gradually the sight improved, her headaches got better and she was able to read and paint miniatures. The periods did not return. She was free from symptoms until the end of 1906 and early 1907.

Then headache returned and the vision failed. She was examined by a London physician, who made a diagnosis of tumor near the optic chiasm. She was put on pituitary extract, which she took for three or four months. The sight failed completely in the left eye and she could only see objects in the nasal half of the right field of vision. In the last year she has suffered comparatively little with headache but has developed an incoordination and weakness of the right arm and leg. She loses her balance easily, has fallen a number of times, and gradually the hemiplegia on the right side has increased to almost total disability. She is somnolent and somewhat dull mentally.

You will notice that the face is that of a child rather than that of a woman—round and chubby. She looks like a big, fat girl of 14 or 15. She is above rather than under the average height. The weight in August last was 230. The hands are chubby and child-like. There are no acromegalic changes. The scalp hair is normal—the axillary and pubic hair scanty. There has been no polyuria or glycosuria. There is a divergent squint and a right-sided hemiplegia with involvement of the lower face, increased reflexes and positive Babinski. There is considerable ataxia of the right arm. Locomotion has recently become impossible. There is bilateral optic atrophy, more marked in the left eye. A little vision still persists in the nasal half of the right field. The X-ray plate shows changes in the sella turcica and adjacent bony structures.

Case 2. E. J. C., aged 44, born in California, a painter and decorator, entered the University of California Hospital December 5, 1910.

Father died from pneumonia at 84. Mother died from cancer at 76. One sister died of cancer—was paraplegic and blind. Five brothers and sisters died in infancy. One brother alive and well.

Married sixteen years. Two children living and well, one died of tubercular meningitis seven years ago.

Previous History. Had spasms as a child. Sight of left eye always poor and always had a squint. Scarletina as a child—no sequelae. Broke left arm as a child. Rheumatic fever at 16 and was three weeks in bed. At 17 had what was called a soft chancre followed by a suppurating inguinal bubo. No signs suggesting syphilis. No lead poisoning. Eight years ago fell thirty or forty feet, dislocated left shoulder and hurt back—did not injure head. Eyes were examined two weeks after injury, as the sight in right eye had begun to fail. Atrophy of left optic nerve was determined at this time but was not referred to the injury. Some weeks after the fall the sight in right eye had diminished to such an extent that he could not recognize his children and could not read. Gradually vision improved and he has noticed no trouble recently.

Headaches began to be severe five years ago and persisted at intervals until last summer. At times pain, apparently deep within the head, would be extreme and prevent sleep and work.

Vertigo would occasionally occur but was not pronounced. There was no vomiting. His appetite for the past few years has been voracious at times. He has been a heavy drinker and smoker.

Enuresis nocturna was a symptom in boyhood

and he has always had some difficulty in retaining urine. Polyuria has not been observed.

He has had more or less cough for a number of years and in the last two years has had moderate dyspnea on exertion.

Present Symptoms. Early in November he began to have pain in feet and ankles and later in knees, hips, shoulders, wrists and hands. There was some swelling of hands and feet but no redness. A band of pressure was felt about the abdomen, elbows and knees.

In the hospital salicylates and later colchicum and iodid were used without influence upon the joint pains. Temperature, pulse and respiratory charts were normal. There was a decided secondary anemia, 4,100,000 red cells, 13,000 to 19,000 leukocytes, hemoglobin 50 to 55%. The urine varied from 1000 to 1800 c.c., contained neither albumen or sugar and alimentary glycosuria was negative. No signs of lead were found on the gums and stippling of the red cells was not present. No explanation of the secondary anemia (occult bleeding, parasites, etc.) could be obtained.

The heart was dilated with a systolic murmur over the precordia. The liver was moderately enlarged.

The facies and voice suggested acromegaly. The patient says his face and hands have always been large and he has noted no recent changes. Old photographs are not available. The left fundus shows old pigmentary and atrophic changes. The right disc is pathologically pale and the field of vision taken by Dr. Alexander shows loss of the temporal half. The X-ray plate shows an abnormally deep and wide sella turcica.

This combination can hardly be due to anything but pituitary disease with enlargement of the gland. From the history, atrophic changes in the left eye were present before his fall eight years ago; post-traumatic hydrocephalus could scarcely cause temporal hemianopsia and there is no sinusitis. Moreover, we know that trauma frequently awakens quiescent hypophysis disease. The severe, long-continued headaches would readily be explained by the intracranial growth.

Is there evidence in the general examination of hyperpituitarism? I think there is. The face is much larger proportionally than the skull. The nose is large, the lower jaw very large and prominent. The spaces between the front teeth of the upper jaw are unusually wide. There are moderate changes in many joints, crepitus and somewhat limited motion in shoulders, elbows, knees, hips and spine. There is no pronounced kyphosis. The changes in the hands and feet are most marked. They suggest chronic infectious arthritis or arthritis deformans. But the shape of the hands is peculiar. The hands are very big, paw-like but not tremendous. He thinks they have not recently grown. The thumb of the right hand is much thicker than the left. The sausage-shaped fingers show particularly well in the X-ray plate. The nails are small in comparison to the size of the fingers. The phalanges are broader than normal. Slight periosteal thickening may be seen in places and these correspond to the points of tenderness on pressure.

Gout and lead may be ruled out as causes of the joint changes. Syphilis may fairly be eliminated by the absence of stigmata and by the negative Wassermann reaction on two examinations. Whether all the joint changes may be referred to acromegaly is decidedly questionable. Joint pains are frequent in the course of the disease; swelling and crepitus have been observed. Schulz has reported a combination of arthritis deformans and acromegaly. It is interesting to remember in this connection that chronic arthritis resembling arthritis deformans may occur in thyroid insufficiency, and that arthritis deformans has several times been observed in combination with sclerodema, Raynaud's complex and myxedema.

Discussion—Clarence Quinan: I have been much interested in this subject for the past four-five years,

and have done some work on the pathological side of it.

At the moment, certain questions occur to me. Among others, I may ask what we know concerning the biochemical activities of the pituitary gland? Undoubtedly, I think, the reply is that we know very little about it, very little indeed, even though there be a fairly extensive literature relative to the morphological peculiarities of its cells. And what evidence is there, if any, to justify us in considering this gland as an independent unit apart from the allied blood vessel glands? Are we as yet able to prove, for example, that, irrespective of a mere gland mass factor, the pituitary secretion alone causes peculiar and definite clinical symptoms? I think not. Certainly none which can be identified in this individual.

The trophic changes occurring in acromegaly are, of course, well known. They are considered to be secondary to a morbid pituitary status. Usually, however, they are so conspicuous as hardly to be mistaken or misinterpreted. But, obviously, none of them is present in this patient. His face, it is true, is rather heavy, but not exceptionally so, by any means, and it has not at all the leonine appearance seen in acromegaly. The early skin changes are also absent. The superciliary ridges are not thickened, there certainly is no prognathism, and, moreover, there is an entire absence of the typical kyphosis. I am besides unable to agree with Dr. Moffitt that there are phalangeal changes at all characteristic or worthy of special note.

As to the X-ray picture, I feel inclined to accept with reserve the interpretation of the shadows at the base. At best such observations are unreliable. May not the lateral view of the sella turcica in many cases be rendered obscure by the overhanging clinoid processes?

Considering the age of this patient, his manifest freedom from the characteristic signs of pituitary disease as we recognize it in acromegaly, it seems improbable that the gland is definitely morbid. It is well to remember that, in the presence of outspoken disease of the gland the peripheral changes are usually rather striking. It is doubtful whether we can detect minor alterations of its function.

Upon the whole, therefore, it seems hardly justifiable to make a diagnosis of pituitary disease where, as in this instance, the objective data are so meager and inconclusive.

Herbert C. Moffitt: I purposely presented this man to get some discussion. I am sorry that Dr. Quinan has not kept in touch with recent literature on this subject, because he would then know that a great deal of work has been done on the question of hypophysis enlargement in eunuchs. In the book by Lamois and Roy, which is a most fascinating one on acromegaly and giantism, a number of pages are given to the discussion of this literature on this form of hypophysis enlargement. I certainly agree with Dr. Cooper that we have to demonstrate some actual destruction or actual dislocation of the clinoid process before we can say whether there is a growth in the pituitary fossa. As mentioned in connection with this man, hydrocephalus may give rise to optic change, and yet we see not a few cases of hydrocephalus in children with secondary involvement of the pituitary fossa and signs that suggest the pituitary secretion has been affected by pressure on the gland. The changes that we get in the extremities in marked cases of acromegaly are unmistakable; we may recognize such cases on the streets. We must remember that these changes are not necessarily progressive, they may be distinctly intermittent, the period of growth may alternate with a period of quiescence, contrary to what Dr. Quinan noticed in his case. In the cases of hypopituitarism that I have seen, the appetite has not been excessive. I had a case of a woman in Berkeley who was quite stont, and her appetite was decidedly below the normal. The young woman whose case I presented to-night has no abnormal appetite; this man has a most voracious one.

Section on Surgery, Tuesday, February 21, 1911.

### Demonstration of Two Specimens of Large Vesical Calculi Removed from Female Bladders by Litholapaxy and the Operating Cystoscope.

By HENRY MEYER, M. D., San Francisco.

Specimen No. 1. Was taken from a married lady, 34 years of age, with three children. Her bladder symptoms were more or less constant and existed for a long but indefinite period; frequent urination, tenesmus and pyuria were present. Cystoscopy showed a large calculus, movable in the bladder, black in color. This calculus measured one and one-half inches in diameter.

February 6 I operated the patient, first with the ordinary lithotrite and evacuated the crystalline covering (which averaged three-sixteenths of an inch in thickness) which surrounded a nucleus which proved to be a foreign body. Cystoscopy then showed a large mass lying in the bladder, green in color, which was broken apart with the operating cystoscope into several masses, and each piece was grasped and removed separately through the urethra with the Nitze operating cystoscope, under the guidance of my own eye. The masses proved to be some variety of wood which is capable of swelling in water; the water in which it is immersed becomes viscid. The green color is due to the absorption of methylene blue which had been prescribed for her. The operation was performed and completed at one sitting; two drams of a two per cent solution of novocain was instilled into the urethra and the operation was both painless and bloodless. No reaction followed, and the patient was well immediately after the operation and has remained so. She states that she does not know how the substance entered the bladder, and does not know the nature of it.

Specimen No. 2. The debris of a very large phosphatic calculus was removed from the bladder of a married lady, 44 years of age, by litholapaxy. It had no foreign body as a nucleus. This was the most aggravated case of cystitis I have ever seen; it was associated with severe tenesmus, pyuria, hematuria and phosphaturia and the urine was very foul. This patient enjoyed no freedom from pain for several years. She had no control of the vesical sphincter for two years and this loss of control of the sphincter of the bladder was complete under profound narcosis, making it exceedingly difficult to open the lithotrite in a bladder contracted around this calculus, which was two inches in diameter. This patient suffered excruciating pain spontaneously and no instrument could be tolerated in the bladder without a general anesthetic. The operation was completed in one sitting, the patient experiencing great relief as a result of the operation. Three weeks after the operation, while free from most of her pain and discomfort, she had only regained slight use of her bladder sphincter, most of her urine dribbled from the bladder as it did before the operation. The cystitis was gradually subsiding. This was an aggravated case of phosphaturia associated with calculus, and the first case of very large calculus in the female bladder that I have met with in my experience without the existence of a foreign body as a nucleus.

### A Report of Four Cases of Perforating Gunshot Wound of the Abdomen.

By I. W. THORNE, M. D., San Francisco.

There is no difference of opinion as far as I have been able to learn existing between modern writers on the subject of penetrating gunshot wounds of the abdomen—he these writers civil or military—as to the treatment of such wounds. The methods of civil and military practice differ vastly, however. The reason for which may be found in any late



text-book article on the subject, and civil and military surgeons are unanimous in recommending that in civil life penetrating gunshot wounds of the abdomen should come immediately to laparotomy.

The high-velocity, steel-jacketed projectile of to-day has probably had as much to do with this unanimity of opinion among surgeons as the advent of aseptic technic, for in the days of the carbolic spray and later, in antiseptic times, the soft-lead, slow-going bullet was as erratic in its course after having once impinged upon the human abdomen as were the notions of antiseptics held by many of the practitioners of that time. This modern messenger, not necessarily of death, we know penetrates and sometimes perforates.

Reliance in making the diagnosis of probable intra-abdominal mischief is to-day laid upon the direction and position of the wound to a large extent, regardless of the presence or absence of symptoms of shock, etc., although the surgeons of the British army during the late South African campaign and the Japanese surgeons in the battles of the Russo-Japanese War relate some astonishing experiences and results with undoubted perforating and penetrating wounds of the abdomen, allowed to go on to recovery without any more surgical intervention than the application of aseptic dressings to the external wounds, starvation and opium.

The first case of gunshot wound of the intestines to be operated upon and reported occurred in 1881—Kinloch was the operator, and there were three perforations. In 1883 another case was reported by Kocher. In this country, Wm. T. Bull of New York performed the first successful operation, there being seven perforations. Many cases have been recorded since then and the following four cases are reported purely as a matter of statistics, although some claim to interest may be made for two of them, owing to their rapid recovery.

Case 1, January 8, 1910—A. B. Young male adult, age 25 or thereabouts, was brought to the Lane Hospital from the Emergency Hospital at 9:20 p. m., suffering from a perforating gunshot wound of the abdomen. Only one wound was visible and that 2½ inches to the left of the median line and 4 inches above the umbilicus; the upper half of the abdomen was rigid, face pale, pulse 128, respiration 36. On the clinical report received from the Emergency Hospital, the time of which was 8:50, his pulse was recorded as 88, respiration 20. The patient had vomited, but there was no blood in the vomitus. He had inflicted this wound himself some twenty or thirty minutes previously.

On the above findings it was decided to open the abdomen, and accordingly a median incision seven inches long was made above the umbilicus. On opening the peritoneum a large quantity of black fluid blood escaped, clots which were clinging to the omentum, the stomach, liver and intestines were removed, and a perforation in the stomach and liver sought for. A perforating wound of the left lobe of the liver was found which was not bleeding; none in the stomach, but on further exploration two wounds in the jejunum were found about three inches from the ligament of Treitz. A large number of large solid clots were removed from this region and some black fluid blood, but no intestinal contents could be distinguished. The wounds in the jejunum being small, they were sewn up transversely to the long axis of the gut with two layers of Pagenstecher Lambert stitches, and a further search was made for wounds of the stomach and omentum—none were found. After having removed all visible clots and blood with sponges wrung out in salt solution, the peritoneum was sutured with catgut and the other layers of the abdominal wall were sutured with through and through figure-8 silk-worm gut, and the patient sent to bed to be placed in the Fowler position and the Murphy continuous enterochysis instituted. He suffered some shock, vomited a small amount of greenish fluid the next evening, but went on to an uneventful recovery, being discharged from the hospital on the fifteenth

day, well enough to be taken to the city prison to await trial for murder.

Case 2, February 17, 1910—S. L. Entered Lane Hospital at 2:15 a. m., having been sent from the Emergency Hospital with the diagnosis of perforating wound of the abdomen. Examination revealed a small wound on the anterior aspect of the abdomen, two inches outside the left mammary line over the tenth rib, which was fractured. Posteriorly, at about the level of the eleventh dorsal vertebra and 2½ inches to the left, was another small wound no larger than the anterior one; each had been dressed with gauze and neither was bleeding. The patient's pulse on entrance was 90 and dropped to 60 after the administration of Gr. ½ morphin, which I ordered, having been told by the patient and his friends that he was in the habit of smoking opium. Previous to the administration of the opium great pain was complained of, and large quantities of blood and stomach contents had been vomited. There was marked rigidity of the left hypochondriac region, and it was decided to open the abdomen. Practically the same incision was made as in Case 1. On opening the peritoneum a large quantity of black fluid blood gushed forth which had a peculiar odor, although it was not that of the stomach contents. The fluid and clotted blood were cleared away as in the previous case, and a search for perforations begun. The stomach was found perforated in the greater curvature, the two wounds, although small and having a valve of mucous membrane, were sutured later with two layers of Pagenstecher Lambert sutures, for on lifting up the stomach to get at its posterior aspect, a large rent in the posterior parietal peritoneum was discovered, which was bleeding freely. The kidney could be distinctly felt underneath, and I palpated it through the rent. The upper pole was perforated, but the wound was very small. The rent in the post-parietal peritoneum was enlarged somewhat and the clots underneath cleared out. No bleeding vessel being discovered, and the oozing from the kidney apparently not being very great, the peritoneum over it was sutured with catgut, the stomach sutured and replaced, and the abdominal wound closed as in Case 1. The recovery in this case was not as uneventful, owing to the intractability of the patient and the subsequent infection of the abdominal incision and sloughing of the fascia. The fractured rib seemed to give more pain than anything else. The after treatment was the same in these two cases, liquids being given on the third day and solids on the sixth, although in this last case a hematuria of slight degree modified the treatment to some extent.

Recovery eventually followed and the patient left the hospital March 17, 1910, but required surgical dressings of the abdominal wound for one month more.

Case 3—In June of 1910, I was called to Vallejo to see this patient who had been shot in the abdomen by a constable three days previous to my visit. The wound was two inches above Poupart's ligament on the right side, and two inches from the superior spinus process. The patient was not doing well; distention of the abdomen had been increasing; temperature and pulse increasing and hiccough had been present at times. The treatment had been purely expectant, opium and starvation, although water had been given rather freely. Owing to the man's increasing peritonitis, it was decided to open the abdomen at once.

The incision was made through the wound and about six inches in length. The peritoneal cavity was found to be filled with a black, foul-smelling fluid. The peritoneum had apparently made no attempt to protect itself by adhesions, and a large longitudinal rent was discovered in the outer wall of the caput colli, close to the mesentery. The parietal peritoneum just beyond the reflection of the mesentery was black and very friable, although on picking it with a needle it bled. The rent in the

colon having been closed, and the peritoneal cavity sponged out, a large cigarette drain was inserted, leading to just below the lower angle of the wound in the gut, and the abdomen closed en bloc. The patient rallied from the anesthetic, but died the following night, twenty-four hours after the operation.

Case 4, J. A. L.—Entered Lane Hospital 3 a. m., January 7, 1911, having been sent from the Emergency Hospital with the diagnosis of penetrating gunshot wound of the abdomen, entering over the eighth rib, nipple line, left side. He was seen by Dr. Walsh, the resident physician, who telephoned me his condition. The wound had been received at 12:30 a. m., and the patient had been supposed to have walked a block and a half before he was found by the police. On entering the hospital his pulse was 94, temperature 99.4, and respiration 30. As the morning advanced, the pulse and respiration gradually increased in frequency. The abdomen in the upper half became very rigid, and at 8 a. m., his pulse having increased to 102 and respiration to 48, it was decided to open the abdomen. The incision, six inches long, was made in the median line above the umbilicus, and great clots and large quantities of black fluid blood presented themselves. After clearing these all away, perforations of the stomach were searched for, and only a small furrow in the anterior inferior surface found, which was sutured. Attention was turned to the liver, which had been held up out of the way, and large abdominal sponges placed against its wounds which were bleeding quite profusely.

On examining the left lobe, the under side of which presented a large ragged wound, several fairly large vessels could be seen pouring out blood quite briskly. This wound was sutured with a double No. 1 plain catgut on a long, full curved, narrow, round needle. Two such mattress sutures sufficed to control the hemorrhage. The right lobe of the liver had been perforated, the ball entering just above the gall bladder, and making its exit on the convex surface, opposite the seventh rib in the axillary line. This wound did not bleed, so the abdomen was closed after making the toilet of the peritoneum, and the missile was removed from just beneath the skin on the right side of the chest, between the seventh and eighth ribs in the anterior axillary line. This case left the hospital on the 18th day, after having been up and around four days.

In the three successful cases here reported in which the amount of blood in the abdomen was considerable, and the absence of stomach or intestinal contents notable, two conditions interested me greatly. I had noted these conditions previously in other cases of abdominal hemorrhage, not due to penetrating or perforating wounds—i. e.—rupture of the liver after a crushing injury, and in ruptured ectopic gestation. These two conditions—distention of the abdomen, rigidity of its walls over the site of hemorrhage, and great pain, and the immediate subsidence of all the above symptoms following the removal of the accumulated blood.

#### A Gauze Sponge Left in the Skull for Over Six and One-half Years.

By HARRY M. SHERMAN, M. D., San Francisco.

On the 29th of October, 1902, I did at St. Luke's Hospital, the Gasserian ganglion operation on a man, aged 65, for a trigeminal neuralgia, from which he had suffered for ten years and which had resisted several operations on the peripheral nerves. The operation was a bloody one, and we had constantly to pack the field with gauze sponges, these being pressed well up under the lifted up brain and dura. At one time the whole of the wound opening had to be firmly packed with gauze sponges and the operative work suspended for fifteen minutes to control the bleeding and permit a satisfactory view of the floor of the skull. The ganglion was located, lifted in vulsellum forceps and clipped out with scissors, and

even this had to be done under the surface of a reforming pool of blood. Another temporary packing was resorted to, to finally control the hemorrhage, and then the wound was closed by sutures, a cigarette drain being put into one corner.

The following day the patient had no untoward symptoms beyond a very slight stumbling in pronouncing a few words (the operation was on the left side of the head). The drain was taken out on this day. The second day after the operation found the patient quite free from pain, and the speech normal. Healing and recovery were normal and the cure of the neuralgia was permanent.

In the early summer of 1909, six and one-half years after the operation, a swelling appeared just above and in front of the ear, at the posterior end of the incision. This was opened in the country, discharged some pus and left a sinus which would not heal. He then returned to me in August, 1909, and at the Lane Hospital I slit up the sinus to discover the cause of the non-healing. In the superficial part of the sinus I discovered a short cotton thread which was not a fresh intruder, and a little deeper I found the corner of a gauze sponge, and pulled it slowly out. Nothing beyond this was found, and a careful search failed to show any bare bone or a sequestrum.

The wound was at first packed with camphor-phenol gauze, it contracted to a sinus, and this closed after a few bismuth paste injections.

The gauze had been inside the skull six years, nine months and twelve days. I submitted it to Dr. A. W. Lee for an examination and he reported that no change had come to the cotton filaments in that time.

I submit this statement as it probably represents the longest time of residence of a left-in sponge after an operation. The long immunity from infection after the operation speaks well for the aseptic technic in the St. Luke's Hospital operating rooms, at the time of the operation.

Harvey Cushing uses sterile cotton pledgets to check hemorrhage from the brain in his intracranial operations. These are patted on dry over the bleeding points, and when the bleeding stops are removed. Cushing acknowledges that he must leave filaments stuck to the tissues, and says they are harmless. Still they must be, even though small, foreign bodies, and a late hematogenous infection may sometimes occur, as probably happened in my case. Many micrococci might find a happy nesting place under one filament.

**Discussion.**—Julius Rosenstirn: I do not think there is very much to be criticized about this paper, but I would like to congratulate Dr. Sherman on the excellent and fair way in which he presents this case. I dare say hardly the majority of surgeons would relate this case in so frank and so clear a manner as that which Dr. Sherman has stated it. I am glad that it has been brought before the Society. It certainly is a matter of great interest to know that within the cavity of the skull, a non-expansive, non-elastic cavity, a sponge of that size can remain without any untoward brain-symptoms for so long a time. It is a most interesting case and we have to agree with Dr. Sherman that his asepsis was very good, not having set up more of an inflammation.

Harry M. Sherman: I wish to express my thorough appreciation of Dr. Rosenstirn's very kind remarks. I reported this case for the very purpose of putting it on record. It is simply one of a very large class. I think that things are not uncommonly left in, and here is an instance where a left-in sponge chanced to be free from infection and did no particular harm for a long while. I do not think that there is any one of us who has not had a patient who had had a bad laparotomy, and a tardy healing, who did not wonder if, by some simple mischance, a sponge had not been left in. The interference of the speech center, the morning following the operation, was of course due to the pressure of the sponge, and it passed because the opening in the bony skull acted



as a decompression opening. This very ingenious explanation was suggested to me by Dr. Sol. Hyman and it is most likely to be accurate. I thought at the time of the operation that the difficulty with the speech was due to the injury done the brain by lifting it to expose the ganglion.

## SOCIETY REPORTS

### ALAMEDA COUNTY.

The regular meeting of the Alameda County Medical Association was held Tuesday evening at sharp 8:15 o'clock, January 17th, 1911, at 127 Telegraph Ave.

It was a Public Health Meeting with the following program in charge of Dr. J. N. Force:

1. Future Possibilities of Sewage Disposal for the East Bay Cities. 20 minutes. C. E. Grunsky, former Consulting Engineer, United States Reclamation Service.

2. Opportunities of the State Hygienic Laboratory. 15 minutes. W. A. Sawyer, M. D., Director of the State Hygienic Laboratory.

3. Animal Diseases Affecting the Public Health in Alameda County. 15 minutes. C. M. Haring, D. V. S., Assistant Professor of Veterinary Science, University of California.

4. Needed Public Health Legislation. 20 minutes. W. F. Snow, M. D., Secretary of the State Board of Health.

5. The Question of Garbage Disposal in Alameda County. 20 minutes. C. G. Hyde, C. E., Professor of Sanitary Engineering, University of California.

This program was a most instructive one and held the attention of every one present, even though the hour became late.

PAULINE S. NUSBAUMER, Secretary.

### BUTTE COUNTY.

The public meeting in February of the Butte County Medical Society drew a fair-sized attendance that listened with close attention to the interesting paper read by Dr. O. Stansbury and the splendid illustrated lecture delivered by Dr. Snow, secretary of the State Board of Health. Both discussions took the form of a plea for a concentrated effort to effect a better system of sanitation throughout the state, and both showed the benefits that accrue from a united attack upon the enemies of health.

Dr. Stansbury, who recently returned from a tour of Panama and the fever zone, explained the wonderful work in sanitation and the results in saving life as prosecuted by the United States government. According to figures, during the period between 1881 and 1888, when the French government was attempting to build the canal, the death rate was many times greater than at present. This because of the precaution taken by the United States in cleaning the district and preventing as far as possible the hatching of the mosquito, which is known to be a conductor of yellow fever and typhoid as well as other diseases. According to an estimate made by an official high in government affairs, 2873 lives have been saved through sanitary efforts during the last year. Dr. Stansbury described in brief his trip through Panama and Colon and told of the methods of procedure by the government in the battle against unsanitary conditions.

According to Dr. Snow, the death rate at present along the canal is less than the rate in California cities. In Panama the death rate is eighteen to every 1000 on the average, while in Los Angeles the rate is twenty-two to every 1000. He made a plea for a united battle array against the house-fly and the mosquito. He urged that more attention be paid to drainage and the source of drinking water used about the homes. His address was splendidly illustrated and proved very interesting.

"Keep clean; keep your back yards clean and ob-

serve sanitation requirements, and in this way escape sickness," he said.

Dr. Snow gave a brief resume of the work being done by the State Board of Health, and stated that more money was needed to carry on the work. He explained the several bills before the present legislature, and displayed a chart which showed that California was paying less attention to health than twenty-two of the other states. "One reason for this," he said, "is because this state is so admirably situated that it does not need so much attention or money to preserve the people's health."

During the last year but one death has resulted from the plague in California, and the only danger of the plague getting a foothold in the larger cities is from rats and squirrels, declared the speaker. No plague squirrels have ever been known in northern California.

In the opinion of Dr. Snow, California should exert more attention to the sanitation and health of the state during the next five years than ever before. He contends that should any plague or epidemic break out in this state, before the fair, it would ruin the prospects of the exposition.

The necessity of continuing the battle against the house-fly and the mosquito was dwelt upon by the speaker. Dr. D. H. Moulton presided and introduced the speakers.

### CONTRA COSTA COUNTY.

A very interesting meeting of the Contra Costa Medical Society was held Sunday in Richmond, with the members as the guests of the president, Dr. C. R. Blake, the health commissioner of Richmond.

There were some fifteen doctors present from various parts of the county and with some guests from Alameda and the other bay cities. The visitors were welcomed here at the depots and escorted to the Portola cafe, where they enjoyed a lunch at 1 o'clock.

They afterwards adjourned to Bank hall for the regular business of the meeting. The prominent features were the interesting paper read by Dr. W. O. Smith of Alameda on "Acute Articular Rheumatism in Children" with opening discussion by Dr. C. L. Abbott, which was followed by general discussion by all present; also the presentation by Dr. U. S. Abbott of this city of a case which had been treated with Prof. Erlich's new remedy, "Salvarsan," which demonstrated the perfect cure from its use.

The meeting was thoroughly enjoyed and was one of the best in the history of the organization.

The next meeting will be held in Martinez at which time the new county hospital will be thrown open for the inspection of the members of the society.

### SANTA CLARA COUNTY.

At the December meeting of the Santa Clara County Medical Society the following were elected officers for 1911:

President, Dr. Jonas Clark; 1st vice-president, Dr. W. S. Van Dalsem; 2nd vice-president, Dr. J. H. Kirk, Palo Alto; 3rd vice-president, Dr. R. L. Hogg, Saratoga; secretary, Dr. W. T. McNary; treasurer, Dr. H. J. B. Wright; councillors, Dr. J. J. Kocher, Dr. N. H. Bullock, Dr. C. M. Richards; delegates to State Society, Dr. L. Cothran, Dr. H. C. Brown; alternates, Dr. M. D. Baker, Dr. L. V. Saph, Dr. E. F. Holbrook, Dr. J. L. Benepe.

There was a large attendance at the January meeting held in the parlors of the St. James Hotel. The new president, Dr. Jonas Clark, presided, and in his address to the society, outlined briefly the policies for the year. He strongly recommended a crusade against contract practice, and the establishment of a physicians' social club to further a greater unity and a better feeling amongst the members of the profession in the county. He deplored the prevalence of a spirit of ill-feeling and animosity, so poorly concealed, amongst various members of the

profession, and urged the members of the society to throw aside all petty feelings, and for the men to unite for the good of the profession and the county.

At this meeting Dr. H. J. B. Wright presented the history and pathological specimens of a case of gastric ulcer that had perforated into the large bowel and had there formed a permanent opening, the patient having lived for nearly three years with the entire small intestine shortcircuited.

CHARLES M. RICHARDS,  
Santa Clara County Editor.

### TULARE COUNTY.

The first regular meeting of the Tulare County Medical Society, since its organization, was held at rooms of the Tulare Club in Tulare, February 15th, and there was a good attendance of physicians from all parts of the county.

Dr. Blodgett, president of the Society, opened the meeting with a paper on "Operative Treatment of Fracture." The discussion which followed was led by Dr. Rosson, but all the physicians present took a great deal of interest in the subject. The best methods of wiring fractures was the chief topic on this subject.

Dr. Barber of Porterville was slated for a paper on "Fracture of Elbow Joints," but on account of the muddy roads he was unable to be present and his paper was not read.

Then followed another paper by Dr. Beck of this city on "Vaccines and Serum Therapy." The discussion on this subject was led by Dr. White of Visalia.

Altogether the meeting was a success and those who were present derived a great benefit by an interchange of ideas. After the business meeting adjourned, the doctors gathered at the Sweetland and enjoyed a well served supper.

### BOOK REVIEWS

**A Text-Book on Bacteriology.** By Philip Hauxton Hiss, Jr., M. D., Professor of Bacteriology, College of Physicians and Surgeons, Columbia University, New York City, and Hans Zinsser, M. D., Associate Professor in Charge of Bacteriology, Leland Stanford Jr. University, Palo Alto, California; 745 pages. D. Appleton and Company, 1910.

This treatise, the most recent of American works on general bacteriology, designed particularly for the use of medical students and physicians, is divided into five sections.

Section I. Devoted to the general biology of bacteria and the technic of bacteriological study begins with a short historical sketch of the science. This is followed by chapters dealing with the general aspects of the subject. The chapter on the destruction of bacteria deals thoroughly with the theoretical as well as the practical aspects of disinfection. Under the head "Methods Used in the Microscopic Study and Staining of Bacteria" complete and full data is furnished. Here as elsewhere in the book, care has been taken to give formulae and processes clearly and fully.

Section II. Contains as complete a discussion of the subject of infection and immunity as could profitably be included in such a work. The influence of the cellular elements of the body in relation to immunity is dealt with as fully as that of the fluid constituents of the organism. Anaphylaxis is treated as extensively as our knowledge of the subject justifies.

Section III. Here the individual pathogenic microorganisms are taken up. The various organisms causing disease in man are discussed in their purely bacteriological bearings and in some instances special paragraphs are devoted to the hygienic aspects of an organism or a disease. In each group related non-pathogens and those pathogenic for animals only are treated. The discussion of the important colonic typhoid-dysentery group is particularly complete.

In the consideration of the tubercle bacillus the various "tuberculins" and other products that are now so largely used in the diagnosis and treatment of tuberculosis are briefly but clearly discussed together with the methods of employing the agents.

In the discussion of the plague bacillus one is disappointed to find no reference to the presence of plague among ground squirrels of the Pacific Coast. The role of fleas in transmitting the disease is almost wholly neglected.

In the discussion of the methods of isolating the cholera spirillum the importance of using a strongly alkaline medium is not brought out. No mention is made of "spirillum carriers," a subject perhaps relatively as important as that of typhoid bacillus carriers which is adequately treated.

**Diseases of unknown etiology,** Rabies, Smallpox, Acute Anterior Poliomyelitis, Yellow Fever, Measles, Scarlet Fever, and Foot-and-Mouth Diseases, are discussed in Section IV.

Section V deals with **Bacteria in Air, Soil, Water, and Milk.** The application of bacteriological processes to the sanitary problems in which air, soil, water and milk are concerned, is briefly described and discussed.

Upon the whole it may be said that the work is one that will prove of value to every medical student and to the majority of practitioners. A well-balanced conservative attitude toward the many unsettled problems in bacteriology is to be noted and commended. We are not acquainted with any book covering approximately the same ground better than this one does and while there are defects, many of which are such as are inherent to a first edition, the work is one that may safely be recommended for study and for reference.

G. M.

**The Cause and Cure of Colds.** By Wm. S. Sadler, M. D., Professor of Physiologic Therapeutics, The Post-Graduate Medical School of Chicago. Published by A. C. McClure & Co., Chicago, Ill.

This little volume, written for laymen, contains much of interest to the medical profession.

Dr. Sadler is qualified to popularize medicine, and has been delivering lectures to the public for a number of years.

The book emphasizes that colds are not necessarily due to low temperature, and contains, in a popular form, our present theory as to the cause of colds. It is a book that we may advise our patients to read.

W. S. F.

**The Health Index of Children.** By Ernest Bryant Hoag, M. A., M. D., Medical Director of Berkeley Schools. Whitaker & Ray Wiggin Co. 1910.

The keynote of his small manual is best summed up in Dr. Hoag's own words: "Ignorance of how to keep well is rather worse than any other sort of ignorance." He considers the physical wellbeing of the school child of first importance and has outlined a very practical system of medical supervision for schools whereby all the defective children can be reached and helped with a little intelligent cooperation on the part of the teachers and parents.

The chief object of this book is to train teachers and parents to observe the ordinary signs of physical defects such as mouth breathing, projecting teeth, bad breath, inattention and backwardness in studies. Inefficiency is often accounted for by defective hearing or vision which when overcome no longer handicaps a child in "life's race." After finding from 50 to 90 per cent. of the children in the grade schools suffering from defective teeth Dr. Hoag seconds Dr. Osler in saying that the intelligent consideration of dental hygiene is of greater importance to a nation than the consumption of alcohol.

All these most important facts are written in a simple, interesting, untechnical manner, and cannot fail to bring results when read by anyone interested in raising the health standards of our schools.

E. H. W.



**Differential Diagnosis.** By Richard C. Cabot, M. D.  
Published by W. B. Saunders Company, Philadelphia. 1911.

The absence of works dealing with and only with differential diagnosis has certainly confronted all medical students and all physicians who take the time and trouble to "read up" their obscure cases. To be sure, such classics as those of Musser and Sahli, or of von Leube on Diagnosis, have proven of invaluable assistance to those more or less experienced in clinical medicine, but until the publication of Neuser's monographs on Dyspnoea and Tachycardia, and Schmidt's book on "Pain," no attempts were made to study medicine from the point of view of the "presenting symptom."

This is what Cabot has undertaken. He shows "how the complaints of the patient—fragmentary expressions of the underlying disease—should be used as leads, and how their lead can be followed to the actual seat of the disease."

He presents lists of the common causes of the most common "presenting symptoms," classified in order of their frequency, and illustrates them by case histories. Such "presenting symptoms" as headache, lumbar pain, general abdominal, epigastric, right and left hypochondriac, right and left iliac, and axillary pains, pains in the arms, legs and feet; fevers, chills, coma, convulsions, weakness, cough, vomiting, hematuria, dyspnoea, jaundice and nervousness, are covered. The subjects are exceedingly well dealt with. No attempts are made to introduce diagnostic rarities, but only such cases as occur frequently in daily practice, but which nevertheless, as everybody knows, require skill in diagnosing.

A careful perusal of the entire book will more than repay one for the outlay of time. Case histories, well presented, are always interesting and usually instructive.

The reviewer can only hope that reading this book will convince the average practitioner that it is only by taking a careful history—and taking it in writing, if you please—by adding to this a thorough physical examination, with frequent recourse to laboratory assistance, that accurate diagnoses can be made, and rational methods of treatment instituted.

R. B.

**Skin and Venereal Diseases. Miscellaneous Topics.**  
Practical Medicine Series, Vol. IX, 1910. Edited by W. L. Baum, M. D., and H. N. Moyer, M. D.  
The Year Book Publishers, Chicago.

This small volume contains brief reviews of a great variety of subjects which have appeared in recent literature and on account of its nature cannot be reviewed here in the usual manner. It is divided into two sections, the first of which has four chapters devoted to various dermatoses and dermatological therapeutics. There are also brief accounts of some current literature on syphilis and genito-urinary diseases respectively. The second section contains references to miscellaneous subjects, medico-legal, historical and biographical.

There is much condensed, interesting and instructive information crowded into the 239 pages of this book that may prove of value to those unable to see the original articles on which the work is based.

H. E. A.

**Chronicles of Pharmacy.** By A. C. Wootton, Vols. 1 and 2. Published by McMillan & Co. Ltd., London, 1910

Beginning with the Pharmacy of the Bible and in the Time of the Pharaohs, and showing its association with Theology, Mythology, Magic and Fable, the History of Pharmacy is chronicled in a most interesting, entertaining and instructive way. Lightly, but faithfully passing over the myths of pharmacy, rapidly reviewing its standing among the ancient Hebrews, Greeks and Romans, tracing its history among the Arabs and noting its work and

its progress on the continent, the author soon places pharmacy in England where with data comparatively fresh and provable, his account becomes more historical and more definite.

The "Chronicle of Pharmacy" is practically the history of early medicine, and the author shows how it was the enterprise, the close observation and crude experiments of the pharmacist that supplied the physician with his remedies and no doubt stimulated him in his researches. Unfortunately early rivalry and early jealousies soon gave rise to ill-feeling, dispute and bitter strife, so that the English literature in the 17th and 18th centuries still echoes the rancor of the strife. It is strange how the same controversies, the same jealousies and the same "charges" caused the troubles of the past that cause them to-day. Innumerable pamphlets of that day accused the apothecary of counter prescribing, of high prices, of extortion and of dividing his profits with friendly physicians. On the other hand the physician was accused of creating a "Doctors' Trust" of extorting extra and unnecessary fees from patients and by preventing the apothecary from supplying remedies, even emergency remedies, endangering the life of the sick and certainly seriously taxing both rich and poor. So serious were the charges and so deeply interested the general public, that numerous laws regulating the practice of the two professions and their mutual relationship were enacted and physicians were even forbidden to be interested in apothecaries. The war might still be going on were it not that "the apothecaries gained the sympathy of the public by remaining at their posts during the great plague of London in 1665."

Kings, Queens and even Popes are among the "royal and noble pharmacists" mentioned and many are the remedies invented or used by them and still found in the *Materia Medica*. While the reader can decide for himself as to how much the prestige and prominence of the maker and user had to do with the reputation of the remedy there is no doubt but that at that time as perhaps even to-day the favor of a royal personage, a merchant prince or even a well-known and favorite dame brought wealth and notoriety to the prescriber and grafted the remedy on our *Materia Medica* there to remain for decades and perhaps centuries.

With a few chapters showing the intimate relationship between "Ancient Pharmacy and Poisons" and the credulity of the public regarding the "Poisons and their Antidotes," a chapter is devoted to the "Noted Nostrums" of the past and we are told of some of the achievements of the pharmacy of to-day.

Will say that this is a most interesting and entertaining work that all will read with pleasure and with profit.

A. L. L.

#### REGARDING MALPRACTICE DEFENSE BY THE STATE SOCIETY.

A recent malpractice suit for \$50,000 in Los Angeles draws attention to the following facts:

1. In this recent suit, one of the "private companies" acted so queerly, that it was not even represented in the defense.

2. The burden of the defense rested on the Attorney for the Medical Society of the State of California.

3. The jury took only twenty minutes to award a verdict in favor of the doctor who was sued.

Conclusions: Malpractice defense by the Medical Society of the State of California is absolutely efficient. If you wish to donate \$10 or \$15 to a private company (organized for profits only), that is your business, but it would be more altruistic to donate it to the building fund of the Los Angeles County Medical Association.—Bulletin of the Los Angeles County Medical Association.

### CORINNA BORDEN KEEN RESEARCH FELLOWSHIP OF JEFFERSON MEDICAL COLLEGE.

The accumulated income of this fund now amounts to \$1,000.00. The Fellowship will be awarded by the trustees upon recommendation of the faculty to a graduate of the Jefferson Medical College of not less than one, nor more than ten years standing, upon condition that he shall spend at least one year in Europe, America, or elsewhere, wherever he can obtain the best facilities for research in the line of work he shall select, after consultation with the faculty; and that he shall publish at least one paper embodying the results of his work as the "Corinna Borden Keen Research Fellow of the Jefferson Medical College."

Address J. W. HOLLAND, Dean.

### MICRO-ORGANISM FOUND IN THE BLOOD OF ACUTE CASES OF POLIOMYELITIS.\*

In examining the blood from acute cases of poliomyelitis in the human beings and also in monkeys in which the disease was produced experimentally an organism was found, different in morphologic characteristics from any heretofore described which may or may not, on further investigation, prove to be the etiological factor in the causation of the disease. Blood smears being fixed in methyl alcohol for one minute and stained with carbol-thionin, the organism appears as a faintly stained blue rod with regular cell wall about 10 microns long and about 8 microns in width, curved at an angle of sixty to seventy-five degrees at one end, occasionally at both ends. At times, the curved end is bulbous. Some of the organisms appear to have a very finely granular protoplasm when the highest amplification is employed. They may be discerned by means of a 4 m.m. dry objective but their characteristics are much more satisfactorily delineated under the 1-12 oil immersion lens. They are found free in the serum as well as within the body of the red blood cell.

The organisms do not retain the violet color when stained by the method of Gram but assume the color of the counter stain which, as generally used in this laboratory, is a very dilute solution of carbol fuchsin.

The bloods examined were from ten different cases of acute poliomyelitis in children and were taken during the epidemic of last summer and autumn, and from thirteen cases of the disease during the acute stage, which had been produced experimentally in as many monkeys.

Blood smears from three normal human beings were carefully examined, and although the search for these organisms was diligently made, none were found. Smears were made from the bloods of thirteen normal monkeys with negative results. After inoculation with the virus these same monkeys gave positive results. The blood of other normal monkeys gave negative results.

Blood smears were stained with iodine and sulfuric acid in order to test the organisms for cellulose, but no blue stained organisms were seen.

Smears from the cords and brains of paralyzed monkeys and from one human case were examined, but none of the new organisms were found.

Filtered virus stained with carbol-thionin and by Gram's method showed none of these organisms.

Defibrinated blood, three weeks to two months old, from two paralyzed monkeys showed the forms in increased numbers.

Cultures made from the blood of a paralyzed monkey, in blood bouillon, plain bouillon, and blood agar, examined after having been inoculated three weeks, showed the presence of the organism in increased numbers. Dorsett's egg medium was inoculated with the same blood at the same time, but the

organism was not found in smears from the surface of the medium or from the water of condensation.

We have searched without success for moving organisms in fresh blood, in old tubes of defibrinated blood from paralyzed monkeys, in blood bouillon, plain bouillon, serum bouillon cultures three weeks old and in the condensation water in three weeks old cultures on Dorsett's egg medium under dark field illumination.

Success in isolating the organisms has not attended our efforts as yet.

SAMUEL G. DIXON, M. D.,  
HERBERT FOX, M. D.,  
JAMES B. RUCKER, M. D.

### NEW MEMBERS.

Coppedge, W. E., Alturas.  
Stratton, J. A., Newman.  
Thomson, A. M., Sonoma.  
Raynes, F. E., Duncan's Mills.  
Weber, A. L., Cucamonga, Cal.  
West, J. M., Red Bluff.  
Myers, M. C., Sacramento.  
Lozieaux, E. S., Sacramento.  
Beattie, Hugh, Elk Grove.  
Hamilton, P. L., Chico.  
Mack, W. E., Paradise.  
Wayland, C., San Jose.  
Clark, H. H., San Jose.  
Hare, Chas. B., San Jose.  
Haas, S. L., San Francisco.  
Macdonald, J. W., San Francisco.  
Flynn, A. M., San Francisco.  
Banks, Wm. H., San Francisco.  
Chambers, J. D., San Diego.  
Carter, R. S., San Diego.  
Long, A. D., San Diego.  
Thornton, C., San Diego.  
Winters, W. P., San Diego.  
Mann, E. C., San Diego.  
Hankin, C. M., San Diego.  
Hollister, J. C., Los Angeles.  
Jewell, R. I., Los Angeles.  
Smith, Harvey, Los Angeles.  
Huntoon, A. F., Los Angeles.  
Huntoon, H. A., Los Angeles.  
Allen, A. B., Los Angeles.  
Lowman, C. L., Los Angeles.  
Gray, E., Los Angeles.  
Chancellor, P. S., Los Angeles.  
Skinner, C. A., Los Angeles.  
Wenzlick, W., Los Angeles.  
Thorpe, H. L., Los Angeles.  
McCann, D. B., Los Angeles.  
Thompson, E. H., Burbank, Cal.  
Meyers, E. L., Chico, Cal.  
Southard, W. F., San Francisco.  
Woodward, A. P., San Francisco.  
Rogers, T. L., Long Beach.  
Derrick, Los Angeles.  
Peters, L. H., Los Angeles.  
Lischner, H., San Diego.  
Steinle, H. F., San Diego.  
McNulty, F. J., Yreka.  
Sevenman, G. W., Keswick.  
Nittler, A. N., Davenport.

### Resigned.

Hopkins, —, Lodi.  
Gilbert, E. C., Brooklyn, N. Y.  
McMahon, J., San Jose.  
La Spado, F., San Jose.  
Atterbury, B. C., Los Angeles.  
Mauzy, W. P., Los Gatos.  
Ruddock, E. J., Santa Rosa.  
Thiele, W. C. A., Los Angeles.

### Deaths.

Metcalf, J. A., Los Angeles.  
Kraemer, Adolph, San Diego.  
McMaster, A. D., Le Grande, Cal.  
Shesler, J. A., San Jose.

\*Commonwealth of Pennsylvania, the Department of Health, Laboratory Report. Samuel G. Dixon, M. D., LL. D., Commissioner.



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No. 5

## EDITORIAL NOTES.

In this number of the JOURNAL appears a brief outline of the work in pathology at the University of California. Decided changes in instruction have been inaugurated since Professor Gay took charge, and the efforts of himself and his associates will, without doubt, yield striking results. The study of disease from both the pathologic and bacteriologic standpoints at the same time will not only economize the student's efforts but impress upon him the great practical value of these preliminary subjects. Dr. Gay's work in immunology has given him an international reputation, and it is pleasing to find that he will continue his investigations along these lines at Berkeley. It is only through such channels that we can hope to develop an accurate therapy and the work of such men as Ehrlich and Gay will no doubt in future time be regarded as the very foundation of a subject which will then be considered the most important branch of medical study.

A few cranks, with a lot of spare time and misdirected energy, and a little money, can stir up an awful lot of trouble in this most curious of all worlds. There are always a lot of people with spare time and unexercised emotions waiting around for some other similarly situated person to cry clamorously that something is wrong or is dreadful and should be stopped. Then a whole lot

of people hear the uproar, do not know what it is all about, get somewhat hysterical, and then you have a perfectly good "movement" well established and ready for troublesome business. So it is with the antivivisectionist. Ninety per cent. of them do not know what they are talking about; the other ten per cent. are talking honestly but their talk is based on erroneous premises. New York *Life* is one of the hysterical ones; why it is so strong for antivivisection, as they call it, is probably a secret locked in the unthinking mind of the managing editor. Be the reason what it may, *Life* has published a lot of fool pictures and cartoons distorting to the point of libel, the work of animal experimentation. All the thousands of lives that have been saved through animal experimentation are forgotten when it is remembered by *Life* that a few dogs and cats and monkeys have been killed. *Puck*, more rational, more thoughtful for public welfare and more sane has printed two full-page cartoons showing, in most graphic manner, the salvation to the sick or crippled child that may come through the sacrifice of a dog or two. Scientists are not monsters; they are demons for work and they seldom or never think of their own personal reward; a few dogs against a few thousand human lives do not appeal to them; *Puck* should be endorsed and encouraged in every way.

Dr. Rupert Blue, who, for so long a time has been giving most efficient service in squirrel eradication, is fast reaping the benefits of the general campaign **SQUIRREL ERADICATION.** which he began last fall toward enforcing the law of March 13, 1909, entitled "An Act for the Extermination of Rodents." The public has been thoroughly informed through the press of the State that this act would be strictly enforced, and within the past month five Boards of Supervisors in different counties have appropriated money to pay for local inspectors, printing and the other expenses which will be accrued in putting this law into effect.

It is Dr. Blue's plan to send a number of trained inspectors from the Marine Hospital Service to these various county seats in order to drill the local men for this work. The counties of Alameda, Contra Costa, Merced, Madera, Kings, Tulare and Fresno, have already voted sufficient money for this purpose, and the counties of Santa Clara, Santa Cruz, San Benito, Monterey and San Luis Obispo will probably soon come into line.

The medical profession certainly owes a great debt to the Supervisors of the several counties that have so gladly given their aid to this great cause. Dr. Blue reports that the money was voted almost without a dissenting voice after the object and purpose of this work was explained by him. In four days he obtained affirmative votes from five Boards of Supervisors. Resolutions have been adopted by these Boards showing the great necessity both from the economic and sanitary standpoint of this campaign and not only defraying local expenses but asking for Federal aid in sending experienced men.

R. R.

Some months ago a man by the name of Christie sued Dr. Rae Smith, of Los Angeles, and a member of the Los Angeles County

# CHRISTIE VS. SMITH.

Medical Association, and hence of the State Society, for \$50,000 damages for operating upon him, as it was alleged, unnecessarily. Dr. Smith held policies in the Physicians' Defense Co., (the policy had expired but neither the doctor nor the local agent knew it at the time the suit was filed) and the Fidelity and Casualty Co., which policy was in full force. There were business relations between the attorney for the plaintiff, Christie, and the attorneys of the insurance company, and therefore Dr. Smith requested that the attorney for State Society take a hand in the case. We retained the services of Mr. Gurney Newlin, a well known attorney of Los Angeles, to take charge of the suit. This selection was made at the request of Dr. Smith himself. The trial came on and was bitterly fought. It is not essential to enter upon the details, but it may be said in passing that it lasted nine days—almost, if not quite, the record for such a suit in this state—and that the jury returned a verdict for the defendant, Dr. Smith, after being out about ten minutes. During the entire course of the trial an attorney representing the insurance company was in court, but he had absolutely nothing to do with the conduct of the case; Mr. Newlin, the attorney for the State Society, did all the work and deserves all the credit for the successful outcome. The insurance company paid the actual charges of the suit—that is, the Court costs—and probably paid their attorney something for being present in court every day. But the main burden of the defense was upon the State Society—and it defended successfully. The *Bulletin* of the Los Angeles County Medical Association, in commenting upon the case a few months ago, said that one of the insurance companies acted queerly. Later, Dr. Smith took the editor of the *Bulletin* to task for printing that statement; a statement which was true and which correspondence in the office of the Society shows to have been true and shows Dr. Smith to have been uneasy about the result if the insurance company alone managed the defense. For some reason best known to himself, Dr. Smith was persuaded to change his opinion, after the suit was over, and to write a letter to the Fidelity and Casualty Co., in which he gives all the credit for his defense to that company, where it does not belong. That letter was copied by the company and, presumably, sent to all the physicians in Los Angeles County, if not elsewhere. The letter is as follows:

March 14, 1911.

Fidelity & Casualty Company,  
204 Merchants' Exchange, San Francisco.  
Gentlemen:

I have recently learned that an unfounded report has become current that you did not

treat me fairly in your handling of the case of Christie vs. Smith, in which I was the defendant. This report has caused me deep chagrin for it is absolutely contrary to the facts. I wish to assure you that your conduct of the case was wholly satisfactory to me and I am greatly gratified with the results obtained. You cheerfully assumed and paid all of the costs of the case, and I was so well pleased with your entire fairness throughout the litigation that I have just renewed my Physician's Liability policy in your company for another year.

Yours respectfully,

REA SMITH, M. D.

What reason Dr. Smith may have had for writing this extraordinary letter, we do not know. Certainly, the statements made in the letter are not all of them in accord with the facts. The company did not pay all of the costs of the case—nor nearly as much as the State Society paid to defend the suit. The attorney for the company did not have a word to say during the entire course of the trial, if the facts are correctly reported.

For some years various companies have issued policies to physicians and surgeons, insuring them against suits for malpractice. These policies cost from \$15 up. The Physicians' Defense Company of Fort Wayne denies that it is doing an insurance business in issuing these contracts—or policies—but in this point it does not hold with the Insurance Commissioner or the Attorney General and it has been ordered to discontinue writing such policies—or contracts—until the question has been settled in the courts. In July, 1909, the Medical Society of the State of California decided to mutually protect the members by defending any member in good standing who should be sued for malpractice. It did not undertake to write any insurance policy or issue any contract; the members decided to take care of themselves. This is done simply for the amount of the annual assessment, and for nearly a year and a half has been done most successfully. As soon as the State Society started this work, and the members began to realize that they did not need to pay their \$15.00 or more a year to any private company, as a matter of charity, they began to discontinue their insurance in private companies as the policies expired. Then the different companies began to write long letters, full of wonderfully impossible statements as to their own respective efficiency and the inability of the Society to do anything like as wonderful legal work as that particular company, etc., etc. In the main, these letters were stock form letters; occasionally a more personal letter was written; scores of them have been sent to the *JOURNAL*. When this sort of thing began, the Council considered the matter and decided to ignore the insinuations of these companies and to pay no attention to their "slams" at the Society's



Medical Defense. The Society was not entering into competition with any company in a money-making business; it was merely establishing a mutual protective arrangement that was not intended for profit but for absolute protection. And it has absolutely protected. When the Insurance Commissioner notified the Physicians' Defense Co. that it must not write any new "contracts," the JOURNAL was asked by a number of members to publish the information; we declined for the reasons above given; we were not out to "knock" any company. This same sort of thing has been going on for a year; not a week goes by that some doctor does not send in a letter from some insurance company in which he has had a policy that he now declines to renew, telling him that the State Society Medical Defense is not nearly as good as the protection offered by the company—for \$15.00 or more. Now let us see what a real case of proof showed.

The old question of whether a manufacturer or discoverer should have the right to patent his chemical, newly invented and of therapeutic value, has received a good deal of discussion during recent years. It is a very large and very complicated question; too much of both to be solved by any small number of men nor in any short length of time. From the Bulletin of the A. Ph. A. we quote the following:

"In Germany, the process of preparing Ehrlich's 606 (or arsenobenzol dioxydiamido-arsenobenzol) has been patented and improved processes can be patented and the products marketed. In the United States, application has possibly been made for a process patent, a product patent and the registration of a title for Ehrlich's 606, and if it should be granted, no other process of manufacture can be patented and the product marketed for seventeen years—the life of a patent—even under an original title, because the inventor who first patents a process in the United States can patent the product also."

Most of those who argue on this subject entirely forget the fundamental difference in the laws of Germany and of the United States. In the former country, the burden of proof is upon the accused; in our own country, the burden of proof is upon the accuser. In Germany, if some one invents a new process for making 606, and the original inventor questions his invention, it is upon the second manufacturer to prove that his process is different from Ehrlich's. In this country it is just the other way round; the holder of the patent for the first process would have to prove that the second manufacturer did not have a new and different process of manufacture—a problem almost impossible of solution, practically.

Probably very few practicing physicians realize that most of the larger manufacturers spend very large sums of money upon what, in many cases, is pure and profitless scientific investigation. Such houses as Parke, Davis & Co., Mulford and others have spent hundreds of thousands of dollars in laboratory construction and scientific investigation. More recently Lilly has joined the ranks by erecting a special building for purely scientific purposes. Of course, all these houses are doing business for the profit that there is in it; but they are striving honestly to do good and scientific work. The value of all this investigation by commercial houses is tremendously increased since the formation of the Council on Pharmacy and Chemistry of the A. M. A. Before, it was a question of taking the word of an interested party, no matter what the scientific value of the statements uttered by such a house might be; in other words, there was always the element of suspicion. Now that is entirely done away with and the scientific work that these houses may do in their expensive and thoroughly equipped laboratories can be accepted at its full face value. Just because they may make a profit upon what they put out that is of value, we should not lose sight of the fact that in many instances that product is the result of only one of many investigations, most of which have not proven to be of any real value. The scientific departments of our larger manufacturing houses are doing a real and a very valuable service to modern medicine.

It having been shown by investigations of Dr. John Force that pathogenic organisms, particularly those of tuberculosis, may be found in butter purchased in the local markets several weeks after churning, a bill was prepared in the hygienic department of the University of California providing for the certification of butter by milk commissions organized under the laws of California. This bill was passed by the Legislature, and approved by the Governor, and in conformity with the authority conferred by it, the Alameda County Milk Commission has adopted regulations providing for the certification of butter. So far as known, this is the first attempt to place the manufacture of butter under medical supervision. The requirements cover quality of cream used, pasteurization, general cleanliness, and proper handling and packing after manufacture. Several butter makers have already signified their intention to apply for certification, and it is believed that there will be a ready demand for their product, particularly as it is thought that no increase in price will be necessary.

T. C. McC.

### THE FORTY-FIRST ANNUAL MEETING.

On account of the fact that some of the reports were received only at the time of the meeting it will be impossible to give a full account of the recent annual meeting of the State Society in this issue of the JOURNAL. The minutes, reports, etc., will appear in the June number. The officers elected on Wednesday evening were:

President, Dr. Thomas W. Huntington; 1st Vice-President, Dr. C. S. Stoddard of Santa Barbara; 2nd Vice-President, Dr. J. R. Walker of Fresno; Secretary, Dr. Philip Mills Jones.

On the Council the following were elected for the 5th District: Dr. A. E. Osborne was elected to succeed himself; for the 7th District, Dr. E. N. Ewer was elected to succeed himself; for the 9th District, Dr. John H. Kuser was elected. Councilor-at-large, Dr. John C. Spencer; for the 1st District, to fill the unexpired term of Dr. Fred Baker, who has resigned, Dr. F. R. Burnham was elected.

Nominees for the Board of Medical Examiners elected are as follows: S. H. Buteau, H. P. Hill, W. P. Burke, H. P. Newman, A. Soiland, Harry Reynolds, Clarence Quinan, A. S. Lobingier, G. F. Reinhardt and W. W. Roblee.

### THE PSYCHOTHERAPY WE NEED.

So simple is considered psychotherapy by some writers that it is all summed up in the words affirmative suggestion; and the crudeness with which this is carried out is hardly credible to men of common sense were not one to hear the glib utterances of its exponents about their methods.

These are perfectly empirical, are prefaced by no analysis nor more precise diagnosis than at most "psychoneurosis," and consist mainly of an impressive and confident manner and the firm assurance either that there is nothing the matter, or that their "suggestion" has the power of removing all incommoding symptoms.

This procedure is inferior even to that of the Christian Scientist, who does at least change his patient's mental attitude towards something, even though it be by a delusional interpretation of the universe.

It is to substitute for this crass notion of psychotherapy something more rational, and to illustrate by examples the potentialities of the applications of science to psychic disorders that writers on psychotherapy should aim. Cases do not always lend themselves to exhibition before medical societies; but careful and intelligible descriptions of the doctor's *modus operandi* is always possible. It is this which the practitioner needs for his information.

T. A. W.

### ORIGINAL ARTICLES

#### MANAGEMENT OF LABOR IN CASES OF CONTRACTED PELVIS.\*

By HENRY J. KREUTZMANN, M. D., San Francisco.

About twenty-five or thirty years ago the science and art of obstetrics appeared to have reached a definite stage of development, of perfection, beyond which further progress seemed improbable. But since that time a new era in obstetrics has been ushered in, a surgical era, and at the present the end is not yet in sight; new operations have been devised; indications have been changed, and in the different complications of labor: eclampsia, placenta praevia, contracted pelvis, etc., great activity prevails; the young wine is still fermenting, it has not yet cleared. I thought it might be timely to discuss the management of labor in cases of contracted pelvis from the viewpoint of modern obstetrics; the following remarks are based on personal experience in clinic and practice and upon the study of the literature for many years.

Two reasons are responsible for the new era in obstetrics, (1) the progress of surgery, especially abdominal surgery, and (2) the desire to lessen infantile mortality.

When in the eighties I was assistant to the chair of obstetrics and gynecology of the University of Erlangen under Professor Zweifel labor in contracted pelvis was managed in a definite manner; cases with contracted pelves of all sorts were a frequent occurrence. Women with absolute indication for Cesarean section were operated as soon as occasion arose. Women with otherwise contracted pelves were treated according to the fact, whether they were primiparae or multiparae. In primiparae a strictly expectant plan was followed; under thorough aseptic precautions as to the condition of mother and fetus, the progress of labor was most carefully watched. Interference was undertaken only upon strict, well-defined indications; no harmful polypragmasia; no yielding to the wishes of obtrusive relatives. But when upon strict indication delivery was once decided, the woman *was* delivered; no dilly-dallying, such as applying forceps, removing it, waiting for hours and then again forceps. Nothing of this amateur obstetrics. When the woman was chloroformed, forceps was applied, tractions done without brutal force, and when the head did not follow, then perforation of the cranium was done at once, in very rare instances craniotomy on the living child. In proper cases podalic version was done, followed also when necessary by craniotomy of the aftercoming head.

Multiparous women with contracted pelves, who entered the maternity service at the time of or shortly before confinement, were treated in exactly the same manner; but when these arrived early in pregnancy, upon careful study of the pelvis and

\* Read before the San Francisco County Medical Society, July 12, 1910.



thorough analysis of the history of the case, premature labor was frequently induced. I must say the results as far as mortality and subsequent health of the mothers was concerned were excellent and left really nothing to wish, but some of the babies were sacrificed.

About that time, Porro's operation, i. e., ablation of the uterus after section, came into vogue, to be supplanted soon by the conservative operation of Sanger, careful suturing of the uterine incision.

The splendid results obtained by this operation very soon created a large field for its performance on relative indication. The results for the babies were good, but even in the hands of the most experienced operator, under most favorable conditions, there was a maternal mortality. For this reason many turned their attention to symphysiotomy, which was rediscovered and reintroduced in obstetric practice by Morisani at about that time, but symphysiotomy never gained a strong foothold owing to its maternal mortality and to many untoward consequences. The same fate had Gigli's operation, hebosteotomy or pubiotomy, separation of the pelvic ring through the pubic bone, to the side of the symphysis pubis; in the last few years the energies of many obstetricians have been bent on developing a safe and easy way to perform Cesarean section extraperitoneally through the cervix uteri.

There are a few hotheads who claim that the time has now come to throw all obstetric operations, high forceps, craniotomy, induction of premature labor, to the ash-heap as obsolete, and who accept only pubiotomy and Cesarean section as "exact" methods to deal with labor in contracted pelvis. If I look over the material of my practice and the results obtained, I must say that I am not ready to submit to this extravagant dictum, and I believe that the interest of our clientele is best served by employing obstetric as well as surgical methods.

My obstetric work in San Francisco has been confined to private practice and to consultations; I have not handled clinical material here. As a matter of routine I have measured the pelvis of most of the women who entrusted their delivery to me, and I found in my practice the lesser degrees of contraction not infrequent, but the higher degrees were met only occasionally. I have not seen here a case of absolute indication for Cesarean section. If I sum up the cases in my own practice and those seen in consultation, a total between two and three hundred deliveries in more or less contracted pelvis will easily result. Since all my records were lost in the fire, I am unable to give exact dates and corroborate my statements with figures.

In my own practice I have not lost a mother; in consultation practice only one. This was a case of universally contracted pelvis of considerable degree; futile attempts at delivery with forceps had previously been made, there were present tetanus uteri and septic infection, fetus dead, craniotomy could not save her. The morbidity of the mothers was likewise good, and without exception their lying-in period was perfectly normal; most of these

women were confined repeatedly. Perineal and cervical lacerations are never entirely avoidable and they do not always heal satisfactorily, a matter which is of no great significance since the importance that is given "lacerations" is unjustified in many instances. As far as the fate of the babies is concerned, I have not done craniotomy on the living fetus; undoubtedly a few babies could have been saved by more aggressive methods. In consultation practice I have declined Cesarean section repeatedly in women whose conditions were not satisfactory to me from long duration of labor, frequent examinations and attempts at forceps delivery. These results were obtained by adhering faithfully to a few fundamental principles.

In the first place, strictest observance of anti or aseptic measures was followed in every case. Examination of a pregnant or parturient woman must never be done except with well disinfected hands. My practice is to concentrate all the energies on personal disinfection; vulva and entrance of vagina only is carefully washed with soap and lysol solution after the hairs of the pubes have been clipped. I disinfect my hands just as if I were going to perform a laparotomy; I examine frequently, and every time I touch the genitalia of the parturient I put my hand in lysol solution.

2. I believe in letting matters alone under close observation; as in every field of medicine, so in midwifery interference should be undertaken only when necessitated by some indication. The fact that an operation is done once, twice or a dozen times with success is not in itself a justification of such an operation. And nowhere in medicine is operation without proper indication more to be condemned than in handling confinements, because delivery is a physiologic process and undue interference only tends to render it pathologic.

3. It is necessary that the one in whose care delivery of a woman is given, examine during pregnancy the pelvis of the gravida; just as we must acquaint ourselves with the condition of the kidneys, heart, etc., so it must be our duty to know whether a woman has a normal pelvis or not. In this way only can the proper course be followed and unpleasant surprises at time of delivery avoided. It is certainly desirable that women with contracted pelvis be confined in hospitals or maternities.

4. We must keep well in mind the fact that neither in obstetric practice nor in other branches of the art of healing, does there exist such a thing as *exactness*. Delivery is composed of a multiplicity of factors, of many of which we have no exact knowledge. Even if we can measure the pelvis fairly well, the exact size of the head remains unknown. Miller's impression into the pelvis can indicate that a head may pass the pelvic inlet, but if we fail to impress the head then we are not justified in saying that the head cannot pass the inlet; the configurability of the fetal head is unknown to us and is of paramount importance. The presentation, furthermore, cannot be presaged; we know nothing of the power and force of the labor pains, such an important factor, nor of the endurance of the parturient. In

our actions we have to be guided by our judgment, based on knowledge and experience.

5. We must bear in mind that the parturient has the right to decide whether or not she should take the slightest risk, when we propose any operation upon her. We can neither force her, nor should we persuade her to submit to that which we want to do. In the conflict between life of mother and life of fetus, there cannot be any doubt for unprejudiced people that preference should be given the mother.

If we regulate our actions in accordance with these principles, we still find occasion to perform many operations; the most important operations are forceps, craniotomy, podalic version, pubiotomy, induction of premature labor, Cesarean section.

Forceps is often required after the head has passed the narrow inlet; there is no difference of opinion on this proposition, but the propriety of high forceps is nowadays questioned. If we use the instrument only in moderate degrees of contraction on strict indications, if we handle the instrument most carefully, if all undue force is avoided, then no harm will result for mother or baby. On the contrary, many a baby will be delivered safely *per vias naturales*, and this has been my experience in a number of cases. But high forceps should always be considered as an attempt at delivery, to be followed by some other procedure if necessary.

Craniotomy should certainly not be neglected, for it holds a firm place in obstetric practice; whenever the fetus is dead and the head offers any difficulty whatsoever to enter or to pass the pelvis, forceps should not be applied, but craniotomy be done instead. If a woman absolutely refuses to have any operation performed upon her, it may yet in extreme cases be necessary to perforate the cranium of the living child.

Podalic version is indicated in contracted pelvis just as in normal pelvis in cases of unfavorable presentation. The so-called prophylactic version is nowadays almost universally given up.

As far as pubiotomy is concerned, I have never done it myself, but its field is being limited more and more and is now restricted to certain cases of multiparous women. Even when done by most skilled hands, a mortality seems unavoidable; besides the many unfavorable after-effects, such as vesicle fistula, impairment of walk, painful sensations around the scar, render it an operation dangerous for the physician, and as long as I can deliver a woman safely in some other way, I shall not perform pubiotomy.

A number of obstetricians have always remained loyal to induction of premature labor in proper cases of contracted pelvis, and sufficient statistical data has been collected to pass judgment. Reliable statistics have been compiled by Dr. Sarwey of Tübingen. The number of cases reported (all from clinics) is 2200; 32 women died, giving 1.4% mortality; 1721 babies were born alive, and of these 1380, or 80.2%, left the maternity in a thriving condition.

Induction of premature labor is a delicate, pre-eminently obstetric procedure, and it requires study

and training to determine the roominess of the pelvis, the time of gestation, the size of the child, especially of the head, and the mutual relation between head of the fetus and bony structure of the pelvis. Labor, sometimes not so easy to induce, must be conducted with great care; patience and close observation are essential, and no interference should be made unless strictly indicated, for premature babies are delicate creatures. But if the proper time has been chosen, labor prematurely induced differs in no way from ordinary labor as far as mothers and babies are concerned, and under good care the babies thrive; this has been my experience with many babies born prematurely either intentionally or accidentally.

*Sectio Cesarea*, on the other hand, has all the advantages of a surgical procedure, and with the general present tendencies toward operations we can well understand why so many Cesarean sections are now done. No great skill as an accoucheur is required; if the head does not enter the pelvis at a time when it should, in the opinion of somebody, possibly some relative, then do a Cesarean section. It is truly a wonderful operation, cutting out of the abdomen of a woman a living being. It has all the spectacular, impressive features of a great operation; besides, you can set conveniently your time. How much is left in the background the poor conscientious accoucheur, who waits hours, days and nights and is poorly paid for his trouble! But in all this inebriating enthusiasm, we must not forget that there is a mortality and some consequent danger from Cesarean section.

Bumm in his textbook says that the prognosis of Cesarean section depends upon the technically correct execution of the operation and on the aseptic condition of the parturient. If both these conditions are present, then he says, "mortality does not exceed 5%." Among evil after effects are to be enumerated adhesions between uterus and abdominal wall and rupture of the uterus in the scar during following pregnancies; a sufficient number of these occurrences have been put on record to make one mindful of these possibilities. If we compare in a general way obstetric and surgical deliveries, we must concede that after a high forceps, version, craniotomy or induction of labor, as soon as the woman is delivered all danger and anxiety ceases; provided, naturally, that we took aseptic precautions and did not injure the mother. In a few months the woman is ready to have another baby. The same cannot be said of either pubiotomy or Cesarean section. Much is said in favor of this latter operation for its ability to save fetal lives. Compared with induced premature labor this seems to be only partly correct. Cesarean section gives us the means to save a certain baby, but the net gain in population is in favor of premature labor. The smart modern woman will have *one* Cesarean section and no more; that means a one-child family. With induction of premature labor, on the other hand, a woman can have a family easily enough. I do not wish to be understood as being opposed to Cesarean section as such. I simply want to protest against the indiscriminate operation, against operation without proper indications. I have done Cesarean section



once on relative indication with good results for mother and baby.

In conclusion, I shall outline what I consider good management of labor in cases of contracted pelvis. For this purpose it is necessary to divide the cases in several groups. I know quite well that such a division is arbitrary, but I ask you to accept it *cum grano salis*. I make three groups:

1. Conjugate vera 6-6½ cm., *indicatio vitalis* for  *Sectio Cesareae*; nothing else is left to do.

2. Conjugate vera just minor 1-1½ cm., that is, slight contraction down to 9½ conjugata vera. They are frequent according to my observations and they will pass in many confinements unnoticed unless we make it an object to measure regularly. Often our attention is called by the fact that in primipara the head has not descended just before labor. But if in a case of this group the woman carries over term, or if the baby is large, if the head does not mold readily, if the membranes rupture before or at the beginning of labor, if the pains are irregular and not effective, if the woman cannot stand the pains and suffering and if the family is excitable, in such a case we have all the difficulties of labor in much contracted pelvis with the one great exception, that the baby will invariably be born *per vias naturales*, unless it be a true giant baby. But it requires tact, firmness of character and reliance on one's knowledge and experience. I have my goodly share of cases of this sort, and I have not done craniotomy nor Cesarean section in any of them. I have waited as many as six days before interfering, keeping parturient under chloroform for hours and waiting my time under close observation of the case. In some of these cases labor progressed with lightning rapidity, once the head was pressed through the narrow inlet; in others, labor was normal but very slow; but in many of these cases it becomes necessary to apply the forceps to the fetal head either in exit or in the middle of the pelvis, or to the head entered with a small segment into the pelvic canal. It is but natural that not all the babies can be born alive in such protracted deliveries, but I have found that the large, strong youngsters can stand a great amount of handling and be revived even if born deeply asphyxiated.

3. The third group comprises pelvis with a conjugata vera between 9½ and 6½ cm.; we make two subdivisions with 7½-8 cm. as the borderline. For those above 7½-8 cm. conjugate vera, two things have to be well borne in mind: First, that a large percentage of these women are delivered in perfectly normal labor without any interference whatever, and the percentage is given as 80 and even more. Secondly, it is always possible to deliver *per vias naturales*, if necessary, after craniotomy. Under ordinary circumstances I think in primiparas we should wait for developments. If indication arises to interfere we have forceps, version, etc., and Cesarean section at our disposal; if a woman has gone through difficult labor, baby possibly dead, to me the premature labor induced in the thirty-fifth or thirty-sixth week of gestation appeals mostly. If a multipara comes under our observation too late for premature labor, then she should be treated like a primipara. But under extraordinary circumstances

we may have to act differently; such extraordinary circumstances are to me a childless couple, advanced in years, or if there is no offspring after many years of married life. In other words, if a baby is most ardently desired, then I would do Cesarean section at the beginning of labor.

For the second subdivision comprising pelvis with conjugata vera from 7½ to 6½ cm., it must be remembered that it is always possible to deliver *per vias naturales*, but that a delivery without crushing the head is the great exception. These cases are not for induction of premature labor, but are the legitimate field for Cesarean section on relative indication.

I have tried to outline in a general way the management of labor in contracted pelvis as I have practiced it; my material has been such that I could not well experiment; results such as I have obtained should be had by others under similar circumstances. I am fully conscious that I have merely touched upon many questions. I confess I have written this communication with an object in mind. An up-to-date, accomplished accoucheur must certainly be an operator trained to do vaginal as well as abdominal work; but that does not mean that every complication in obstetrics must be met with a surgical operation. If the present tendency to overcome all difficulties in labor with Cesarean section is further encouraged, then midwifery will soon again be what it was centuries ago—part of general surgery.

It is the purpose of my paper to appeal to those who devote their time and energy to the arduous duties of an accoucheur, not to be swayed entirely from obstetric paths through glowing accounts of surgical deeds in midwifery, but to cultivate obstetric operations, such as high forceps and induction of premature labor in proper cases, to the decided benefit of childbearing womanhood.

#### Discussion.

Dr. J. H. Barbat: I want to voice my sentiment against the perforation of any living baby's head or the destruction of a living child by craniotomy in any case, especially in a city the size of San Francisco, where we have the ambulance and hospital at our command and competent men who can perform Cesarean section. It may be allowable in the country where the doctor has no facilities of any kind, to tear the child out piecemeal, leaving the mother a cripple in more respects than one. On the other hand, I have seen women after a Cesarean section leave the hospital in two weeks perfectly well with a living child.

Dr. J. Rosenstirn: I have listened with interest to this able paper, and whilst I certainly agree with Dr. Barbat that anybody to-day should not, without absolute necessity, perforate a living child, but in preference should do a Cesarean section, still I understood Dr. Kreutzmann to say that he would only do the craniotomy if the mother absolutely forbade the operation. I believe that in order to do the Cesarean section the mother has to grant her permission. Without that we have not the right to perform it, but I believe that in all cases where that permission can be obtained, Cesarean section should be chosen in preference to the barbarous operation of perforating and piecemeal delivery of a living child. I would like Dr. Kreutzmann to tell us of his experience regarding the effect of a protracted birth through a contracted pelvis on the central nervous system of the child, and if he saw injuries to the

nervous system arising from protracted confinements. I must say that I, in my surgical experience, have been led to believe that such injuries are not so very rare as some will have us believe. I think that such observations should be enlisted among the indications for the Cesarean section, in order to insure a more rapid ending to the confinement.

Dr. F. P. Gray: I think that Dr. Barbat is quite right in his stand that the living child should not be perforated, except under very extreme circumstances. The whole matter hinges on what can be done properly. If Cesarean section is done under proper indication, the mortality is very small. If craniotomy is done properly the terrible injuries are not liable to occur. The fault of the profession at present is not that the obstetricians are getting keen to do Cesarean section and abandon conservative methods, but that the whole profession is neglecting to know the condition of the patient in time to decide what should be done. I think it probable that only a small number of the gentlemen present, who have had confinements, have measured the pelvis beforehand. I believe this is all wrong. I think the pelvis of every woman should be measured before she goes to labor, and the earlier the better. A considerable number of cases of Cesarean section have resulted in death to the woman. A considerable number of cases of pubiotomy have resulted disastrously,—not necessarily, because of the operation, but because the women had been examined, forceps introduced, version had been attempted, and other endeavors had been made without sufficient aseptic and antiseptic precautions. If the woman can be in a hospital before labor, and is carefully examined, there is no reason why the progress of labor should not be watched for a few hours. This is especially of value in the borderline cases, running from 8 down to 6 c.m. and if these women are properly handled beforehand, and then found incompetent to deliver themselves, any of the operations could be resorted to with safety, and certainly Cesarean section with safety to the child. It is a question of the preliminary study of the woman's condition, of being more familiar with the comparative size of babe and pelvis, and more careful of the aseptic precautions. These we need to dwell on more than the over enthusiasm in urging Cesarean section.

Dr. A. B. Spalding: I agree with a great deal that Dr. Kreutzmann has said, but I cannot see exactly where the induction of premature labor in cases of pelvic contraction at the present time can have a very great standing as a routine procedure. I have only once induced labor for pelvic contraction and in that case it had already been started by another physician. The baby died. This afternoon I looked over my personal cases and found 84 cases of contracted pelvis in hospital, private, and consultation work. Of the 84 cases of contracted pelvis, abnormal presentation was a frequent accompaniment and that the general practitioner often fails to diagnose. Of the 84 cases 32 were associated with abnormal presentation of the child. The deliveries were sometimes difficult but nevertheless 53 delivered themselves spontaneously. That shows that waiting is a good thing although I would not wait six days. Even in the 32 cases of contracted pelvis combined with abnormal presentation, 13 delivered themselves spontaneously. Thirty-one of the 84 cases had to be operated. A few of the operations I did not do myself. Forceps were used in 20 cases. Of these 20 there were two high forceps operations which came to the hospital undelivered with ruptured uterus and both died. These were needless deaths. Five were versions, five were Cesarean sections and one was a case of premature induction of labor. In all there was no maternal mortality except the two high forceps cases which were misjudged. That is the trouble. There is a lack of judgment in the management of patients

with contracted pelvis. There is needed a more general study of the pregnant patient, which is not done. Of the baby mortality there were 8 deaths in the 84 cases, including the two due to high forceps and the one to induce labor, all of whom could have been saved by Cesarean section. There should be no mortality, if these cases are handled properly, than is met with in normal labor. A study of the patient previous to delivery is what is necessary. Cases of contracted pelvis should not be attended at home but should be sent to the hospital early and should be considered candidates for Cesarean section. When such a patient is in the hospital she should have a thorough trial for labor with the full expectation that spontaneous labor will occur. I do not believe in operations except for clear indications. I cannot say that the child's life is more valuable than the mother's or the other way. We have no right placing more value on one than on the other. If we are careful during the early part of labor we are not going to kill them. I do not believe that the exhaustion caused by a reasonable length of labor increases the mortality. It is the infection that kills. Pubiotomy is not often needed. It is done in cases of funnel pelvis where low forceps fail. The pubiotomy will allow enough room for a successful delivery and will do away with the voluntary or involuntary craniotomies and complete lacerations of the perineum which so often complicate the case with an outlet contraction.

Dr. H. J. Kreutzmann, closing discussion: I agree with Dr. Barbat that any one who performs craniotomy and cuts up a woman the way Dr. Barbat depicts it, might better do a Cesarean section; he certainly could not do worse. In doing a craniotomy in the proper way no such results as have been depicted follow. As far as Dr. Rosenstirn's remarks are concerned, I will say that when I spoke of waiting six days, I did not say that I waited that length of time in every case, that is only in one particular case. I said that certainly these cases are cases for a maternity or a hospital. From early training I like inducement of premature labor. I have seen so many good results from this practice. It is not the contracted pelvis in which the difficulty lies, but it is the relation between the pelvis and the child. With premature labor in the thirty-sixth week of pregnancy you get a baby that slides through the pelvis much easier. As I have stated an American woman will not go to Cesarean section twice but she will have a second baby or more if the labor is induced. As far as relative indication is concerned, certainly not every case of contracted pelvis should be operated upon. Wait and then do Cesarean section, if necessary, or under peculiar circumstances operate at the beginning of labor.

## FACTORS UNDERLYING THE CAUSE AND TREATMENT OF RETRODISPLACEMENTS.\*

By DAVID HADDEN, M. D., Oakland.

The uterus lies horizontally with the body in the erect position. It is not a fixed organ for provision has to be made for the variation in size of the bladder and rectum in daily life and the enlargement of the uterus itself in pregnancy. It has ligaments, but outside of the sacro-uterine, they are not suspensory ligaments. Even the sacro-uterine are not true suspensory ligaments though they approach nearer to that function. If all the pelvic and abdominal structures are in normal condition, the uterus stays in place practically without the aid of the ligaments, and only when the distension of the bladder and

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rectum occurs, do we find the ligaments placed under any tension.

There are two factors that have more to do with the maintenance of the position of the uterus than the ligaments and they are the uninjured perineum and the somewhat disputed relative factor of the pressure of the abdominal contents. With the uterus in proper position, any intraabdominal pressure acts on the upper or so-called posterior surface, pressing it down on the bladder. The intact perineum keeps the abdominal and pelvic cavities closed and in this closed chamber the uterus practically floats with even pressure on all sides except what may be exerted by the variation in cavity contents and respiration.

Destroy the value of the pelvic diaphragm by injury to the levator ani and its inclosing fascias, as occurs in a tear of the perineum and immediately through the air entering the vagina, the balance of the uterus is disturbed and the atmospheric pressure is transferred to the level of the cervix where there are no muscle or fascia structures of sufficient strength to bear the strain. Then the intraabdominal pressure becomes a most active power and instead of being exerted on the posterior surface, is exerted on the fundus, for the uterus has sunken to the point where the ligaments become suspensory and is in the first degree of retroversion. The circulation is interfered with, the body becomes heavy and congested and flexes on the cervix, giving a retroflexion. Now the uterus has no tendency to return to the normal position by itself, for all the pressure from above is on the anterior surface. For a time the uterus remains stationary at the same level except as it rises and falls with respiration, for the ligaments are suspensory and only as they stretch does prolapse occur. But there are other forces developing which exert their power as a drag from below in stretching the uterine supports and hastening prolapse. The anterior rectal wall has lost its support through the injury of the levator ani and its fascias; the central perineal tendon being destroyed allows the retraction of the external sphincter of the anus which increases the distance from the vestibule to the rectum. So thus the expulsive force of the rectum acts in a forward instead of backward direction and the continued pressure and weight of the bowel contents stretches the recto-vaginal septum forming a rectocele. The walls of the rectocele thicken through unaccustomed exposure to friction and air and more weight is added. The same process goes on with the bladder and anterior vaginal wall (though more slowly) and these unaccustomed forces pulling on the cervix, which is congested and soft, cause an elongation and hypertrophy of that organ and that extra weight is also added to the pull exerted on the uterine ligaments which gradually stretch out and the various degrees of prolapse follow.

The cystocele and rectocele have been spoken of as hernias of the bladder and rectum, they may be true hernias if the fascias have split during childbirth, but more often the fascia over the rectal and bladder walls are only stretched and atrophic and if rest can be given will recuperate. It is a question though of definition, if a hernia is a protrusion of

any structure beyond the body line then the cystocele and rectocele are hernias of the anterior and posterior septa, but not alone of the bladder and rectal walls.

Thus occurs retrodisplacement and prolapse in women who have had injuries to the perineum. Retrodisplacement may occur in nullipara but is due to very different causes: a sudden fall or strain with the bladder overdistended: a growth on the posterior surface or an adhesion exerting a backward pull: perhaps it is one of those cases of generally relaxed fascias over the whole body and this class of case may explain why subjective symptoms persist after a seemingly good operative result.

There are more types of operation for the correction of retrodisplacements of the uterus and plastic work on the perineum than for almost any other defect in the body. The most advanced thinkers differ from each other most radically when it comes to pelvic plastic work. Most of the general surgeons advocate (and do) Kelly's suspension operation. Practically every prominent gynecologist considers that operation an unjustifiable one except when pregnancy is prevented by age or the removal of the tubes and yet Tweedy of the Rotunda Hospital, who has a big obstetrical experience, said when I questioned him that he always regretted it when he tried anything but Kelly's and that he had never seen a difficult labor resulting.

The variations of opinion regarding types of perineal work are even more marked and every man who does much work in that line has his own type of operation, and considers the other operations of little value.

Now why is there such a variety of opinions amongst men of such standing? Men who for the removal of an appendix or the repair of a cervix stand fairly well together. There are only two possible explanations for there being such a number of operations to accomplish one end—either we have found no operation universally successful, or the majority of the operations are uniformly successful.

In all parts of the body where we need fairly strong supports but yet allowance must be made for a certain considerable amount of elasticity we find muscle always combined with fascia. In the pelvic region, the levator ani has two layers of fascia: the central tendon of the perineum is the union point of many small muscles inclosed in fascia layers. The round ligament has considerable involuntary muscle tissue. Fascia always stretches if put under too great tension and only through rest, either in sleep or subsidence of the pull, does it tend to recuperate. Muscle on the other hand develops by use within certain considerable limits and again muscle must be under a certain amount of tension before it will contract. The muscle then is associated with the fascia in order to take up the strain on the fascia and prevent its being over stretched. In the rectal and bladder walls the muscle while undoubtedly mainly for the purpose of emptying the cavities surely does much also to keep the fibrous layers from over distension.

In retroversion of the uterus, we have the ligaments so stretched that the muscle is of no value and while the pull continues on the fascia there is no hope for recuperation. In the injury of the pelvic diaphragm, the muscles are made inactive through

the severance of the fibres or the destruction of one attachment, and the fascias are bound to stretch and no amount of rest will cure, for while the fascia layers will recuperate the stretching will recur very quickly when the pressure returns.

In repair work of the perineum any operation which will reproduce the sling of muscle and fascia in both levator ani level and outlet will give good results no matter how we introduce our sutures or what kind we use. Any operation for retrodisplacements which will take all the strain off the ligaments for a sufficient length of time, counteracting all those forces which produce the abnormality, will be successful whether the results are obtained by shortening the old or making new ligaments. Any operation which in its completion leaves any strain on all or any set of ligaments is going to result in failure through a gradual stretching out again. So we cannot expect any abdominal operation to permanently correct a retrodisplacement if we leave an un-intact perineum. Nor an Alexander operation to be successful if we have adhesions holding the uterus in any position but forward on the bladder.

Our results depend not so much on the type of operation we use as upon the thoroughness with which we establish a normal relation of parts.

We can often cure a retrodisplacement with a pessary provided there are no parametritic complications if we first amputate the cervix and repair the perineum. A pessary acts in part by holding up the sacrouterine ligaments so that the cervix is held up and the body falls forward, but it keeps those ligaments on tension constantly so there is no chance for gain in tone, but the round and other ligaments have the strain removed and do gain in tone if the pessary is worn a sufficient length of time. When the pessary is removed, the question of cure depends on whether the other supports are strong enough, the cervix light enough, the perineal support good enough to keep the uterus forward while the sacrouterine ligaments gain tone,—and meanwhile a full bladder may throw the balance in favor of the retrodisplacement if the position goes uncorrected too long.

After pregnancy, the heavy uterus, the relaxed supports, the injured outlet, the dorsal position with the binder favor the production of retrodisplacement and if we would watch our obstetrical patients more carefully after labor and keep the uterus in position while complete involution took place and then build up a good perineal support, we would have fewer cases of retrodisplacement and prolapse to operate.

## TUBERCULOUS ULCERATION OF THE RECTUM.\*

By W. H. KIGER, M. D., Los Angeles.

In this great fight against the "white plague," it must not be forgotten that other parts of the human anatomy than the lungs are prone to be attacked and may be destroyed, and too, when no remedy save the knife can or will effect a cure.

How familiar you surgeons are with the tubercular knee joint, the aurist with the trouble affecting the ear, the oculist as it attacks the eye, and the throat specialist as it is evidenced in the larynx, and

the internal medicine man treating the skin for the same. Is it any wonder then that the proctologist should meet it in his work? Quite the contrary, it can be asserted that the anus and rectum are favorite sites for the manifestation of tuberculosis.

Time was when the medical profession was a unit in saying that if one was suffering from such a condition, nothing should be done looking to relief for the reason that it was useless. Indeed, they went further than this, for they taught that any operative procedure in a case of tubercular fistula of the rectum, would make the lung trouble increase at a rapid rate (granting that the lung was affected). They even contended that if the fistula was cured, it would cause the lungs to take on the trouble.

How absurd such teaching appears to us to-day: would the surgeon of to-day let the tuberculous knee alone, for fear of this? Certainly not, but they would at once place such patients under rigid, constitutional or local treatment, and the local treatment must often be surgical.

Too much has it been the custom in the past to consider tubercular affection of the lungs solely, and to place very little stress upon tubercular trouble elsewhere. One important point that I wish to impress is that wherever tubercular trouble is made manifest, that part becomes a focus for a distribution of the disease.

In dealing with a suspected case, attacking other parts of the body, one might fall into error in point of diagnosis through a failure to find the tubercular bacilli, but it is a fact that the pathology found may be of tubercular origin, and the micro-organism cannot be detected in the tissues. I have known this to occur in dealing with the tubercular ulceration of the rectum. Fortunately, there are clinical symptoms sufficient to make a diagnosis, outside the finding of the bacilli. It cannot be denied that if an ulceration affecting the anus and rectum is of tubercular origin, it is of very grave consequence. Local destruction of the parts is sure to take place, and constitutional infection will follow in the wake.

I am not dealing in this paper with tuberculosis affecting either the small bowel, or the colons, but simply where the tissue around the lower gut is involved.

*Symptoms.*—General: A patient who consults a physician for examination and treatment for a local ulceration situated either on the inside or outside the rectum, seldom looks upon the trouble with any degree of gravity. One reason for this lies in the fact that of all the affections, either of the anus or of the rectum, this character of trouble is the least painful.

If his symptoms have not been of sufficient moment to the patient to compel him to seek medical advice, he has very likely looked upon it as a very ordinary condition, attended with no danger whatever. In dealing with such a patient, suffering from what can be seen is an ulceration of these parts, the thing of the first consideration is to take a correct history of his case, looking to a clue in his general symptoms, or more properly speaking, to find out if the systemic condition is responsible for the local, or vice versa.

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But right here we may be led astray, for many of these patients look and feel extremely well. If there is not a positive evidence locally, we may be inclined to waver in our opinion, although nearly convinced. If the micro-organism can be detected under the slide, all well and good, but it must be remembered that often this test fails us, and too, where the condition is of tubercular origin, but a careful history of his case may reveal much, and aid in making a diagnosis.

Local: The first symptom locally that may attract the patient's attention is an uneasy sensation around the lower edge of the rectum; not pain, for the absence of pain in any marked degree is the most characteristic feature, and should he present himself for examination, the physician will notice a peculiar condition of affairs. What the patient complained of as an "uneasy" condition will be seen to have been caused by a "boggy" appearance of the tissues surrounding the anus. No sensitiveness or pain on pressure, no apparent swelling, but underneath can be detected a fluid which fluctuates upon evacuation; this fluid is found not to be pus, but mucopurulent: in it may be found the tubercular bacilli, though not always, or it may be that the skin is broken, and this fluid oozes out, constituting what is called a fistula.

Taking a probe or other instrument, it will be found that the skin is undermined for a considerable distance around, and that the opening, instead of contracting as in ordinary fistulae, opens wider and wider, presenting an appearance of gaping. It will be noticed that the skin surrounding is abnormally pale. Mr. Allingham, Sr., has called attention in these cases to the hair which surrounds the anus, as being "silky." Time goes on, the surrounding tissues are invaded and break down. When these conditions exist, even if no micro-organism is detected, there can be no question but what the trouble is of tuberculous origin.

If a patient suffers from a true abscess of the rectum, the symptoms are so positive, redness, swelling and pain locally, and a high temperature bodily, that he seeks advice at once. But in the case of tubercular abscess, which is a misnomer, the symptoms are so insidious, and free from either pain or swelling that the patient is slow in seeking medical advice. Granting then that we have a tuberculous ulceration (or fistula) to deal with, what shall be the method of procedure? It must be understood that an ulceration of this character which makes the appearance at the verge of the anus, or just within the rectum, is synonymous with the so-called fistula, for if the skin is dissected off in the fistulous condition, an ulcer is left, possessing the same characteristics as the ulcer within the rectum. The same treatment is to be accorded each of them.

Treatment: The first thing that confronts a surgeon in dealing with a case of this kind is, is it best to try and restore the patient to a good physical condition, or operate first and apply constitutional remedies afterward? My experience has taught me that it is best to eradicate the local condition first,

and then watch the general health of the patient. It must be conceded that the longer the local condition lasts, the more liable the patient is to a general septic infection; of course, no intelligent surgeon to-day adheres to the former belief that to cure a tubercular rectum would eventuate in an attack on the lungs.

The next proposition that the surgeon has to deal with is: Will the wound heal in condition such as has been described? In answer to such a proposition, it can be truthfully asserted that under all conditions and circumstances it is best to evacuate at once this muco-purulent matter, thereby preventing further infection from that source. The ulceration that is left requires no treatment that would in any way be detrimental to the general health of the patient, but to the contrary, be of much benefit to him. So the writer would recommend that both treatments be pursued at the same time, there is no reason against such a procedure.

If a fistula exists, the operation is very like the ordinary one done for any other form of fistula; namely, every sinus to be sought out, and all overlapping or superfluous skin removed. But ulceration proper, whether it exists at the bottom of a fistulous track, or an ulceration independent of a fistula, is to be treated in a very different way from other forms of ulceration. A thorough curettement of the ulcer should be made, and such applications used as the physician thinks best.

In the experience of the writer, pure carbolic acid is the best agent in these circumstances. However, Mathews considers the application of the actual cautery as a *sine qua non* in these cases. He recites many cases of cure of tubercular ulceration by the use of the hot iron. To one point I would draw especial attention. Avoid, if possible, the division of the sphincter muscle, and under no conditions, divide the muscle twice at one sitting when operating for tubercular fistula of the rectum. In these patients, this muscle is always feeble, and its power of contraction much lessened by the disease, and to add to it by trauma, is not good surgery.

Tubercular ulcers are slow to heal, so-called indolent, hence after the first treatment by the actual cautery, carbolic acid, etc., this slow process can be aided by less severe remedies. The choice is balsam peru or compound tinc. benzoin, ichthyol. These can be applied in their full strength as the healing process progresses. If it appears to hesitate, to again touch it with the hot iron does much good in starting it anew. As a rule, these patients should not be confined to the bed or the room. If the weather is good, they should be allowed to be taken outdoors, even if they should walk it would do no harm in the sluggish condition of these wounds.

A tonic course of treatment should be instituted in each case, but there are no specifics. The secretions should be watched and the habits regulated; under this management patients suffering from tubercular ulceration will get well; not only will the local condition heal but the general health will be restored.

## RUPTURE OF THE LIVER.

### A CASE REPORT AND COMMENT.\*

By HARRY M. SHERMAN, A. M., M. D., San Francisco.

R. D., an eight-year-old boy, was run over by a milk wagon, the right forward wheel passing from left to right over the lower dorsal region while the boy lay prone. In its passage the wheel compressed the lower part of the thorax (the eighth left rib was broken) and the upper part of the abdomen. The accident occurred early in the afternoon. He was taken first to a drug store by the people who chanced to be in the street and picked him up. In the drug store he vomited the remains of his noon-day meal. Thence he was taken home and vomited more. Neither time did he vomit blood. I saw him about an hour later, and found a rigid and tender belly, and an acute intense anemia. Other lesions were not looked for at the time. He was at once sent to the Children's Hospital and on arrival was pulseless, very white, and with shallow respirations. The belly was still rigid and tender, both being general, but both more marked over the upper right quadrant. There was tympany in front, but dullness in the flanks. Salt solution under the skin was immediately given, the boy was put under light anesthesia by ether and the belly opened in the middle line from the ensiform to the umbilicus. The whole abdomen seemed full of fluid blood which, in general, poured from the wound, but, in particular, gushed from the liver region. Quick palpation of the liver convexity found no wound, but under the organ the fingers at once slipped into a deep rent, at about the middle of the right lobe, and from this blood was spurting. The intestines were swept rapidly from the upper abdomen and the liver rent packed with gauze. Holding this with one hand the rest of the abdominal contents were rapidly inspected and no injury found—this applies to the spleen, the stomach, the upper quarter or third of the small intestine, the upper portions of the large intestine, and the right kidney. As the gauze in the liver rent seemed to be controlling the hemorrhage, no attempt was made to see or explore the wound. The gauze was, however, packed in more tightly, the intestines returned to the interior and a voluminous gauze packing put in after them, and then the incision was, except for an opening kept for drainage, hurriedly closed by through and through suture to provide pressure to keep the liver pack efficient. On leaving the table the boy was no worse than when he went on it, and he was taking up the salt solution readily.

The following morning there was a radial pulse, there had been no more hemorrhage, but the sanio-serous discharge was abundant; and from this time, so far as the liver was concerned, the acute stage of the episode was over; the belly wall sutures were, in due time, removed, the gauzes were taken out gradually, these things being done at the times when complications demanded other interventions, and the final removal of all gauzes, including that up against and in the liver rent, occurred on the tenth day and no hemorrhage followed it.

However, although he had, immediately after entering the hospital, passed urine which was clear and not bloody, his bowels had not moved, nor could they be made to do so, though he had passed a little flatus at different times. By the end of twenty-four hours after the initial operation he had begun to vomit, and the vomitus quickly became dark and foul smelling, in marked contrast to the drainage from the belly which was quite sweet. More dark foul material was washed from the stomach and 30 cc of castor oil were introduced; but this was shortly ejected. There was still no evident tympanitic distention of the belly and intestinal gurgling could be

heard, but other attempts to open the bowels by magnesium citrate, by the mouth, and various enemata, all failed and on the third day intestinal gurgling lessened, the vomiting became regurgitant, he had abdominal pain and some distention, so that intestinal obstruction was evident. This obstruction, it seemed, might be due to an overlooked lesion in the upper part of the small gut, or might be due to the pressure of the gauze on the large intestine, or might be due to a kink anywhere which had been made when the intestines were crowded back into the belly. Again under light ether anesthesia, seventy-two hours after the first operation, the belly was opened by removal of the sutures; everything was sweet, the small intestine was distended, the large was under some gauze and the latter was adherent to the gut everywhere. As any attempt to detach it would have been a major traumatism, I made another incision over the head of the colon, found it collapsed and so picked up a full coil of small intestine, pulled it out and opened it and after emptying it tied in a Mixer tube. This gave competent drainage for intestinal contents and the belly became flat and by good fortune the coil found was one near the ileocecal valve, for the intestinal contents were brown, almost fecal, and were not irritant to the tissues around the opening, and some leakage by the side of the glass tube was unavoidable of course. The major difficulty I was spared, that of locating the exact point of obstruction, for about thirty-six hours later the bowels moved spontaneously. Evidently the intestines had been kinked and could not become disentangled while under pressure, but did so when the drainage emptied the gut and gave them room. Drainage from the tube was free, too free in fact, for the boy lost much fluid and in spite of generous feeding he became emaciated. I had wished, by feeding, to get some improvement in his general condition before any more surgical interventions, and even tried halfway measures to control the intestinal leak, first by corking the Mixer tube, which was a failure, and later, as the adhesion of the gut to the belly wall was not firm, I took out the tube and closed the gut opening with a chromic catgut lateral Lembert suture without any anesthetic. This stopped some leak, but only temporarily, for the wound did not heal and the more fluid contents of the intestine all ran out. Therefore, on the eighth day—it might have been done earlier—I did a formal closure of the intestine by a silk through and through suture and a chromic catgut Lembert over suture and dropped the coil back into the belly. To leave a way out for a leak, which I considered most likely, I merely tucked a little gauze into the belly opening and, though it seemed to be very much like starving a skeleton, I stopped food by the mouth and resorted to rectal alimentation. No leak, however, occurred. The gut healed, and in 48 hours I began to feed him again, and again a phase of the episode was terminated satisfactorily.

Up to this time the boy had had a rapid pulse, some fever, but not very high, and some leukocytosis, but not above 10,000 to 12,000. From about the time of the solution of the intestinal problem his fever began to go higher, to 39.40, and the leukocytosis increased gradually to 28,000—but I could not find the pus that these things indicated. I could only say that it was not around the liver nor at the point of my healed enterostoma. A sign and a symptom then came to help. The symptom was an inability of the boy to take more than 60 to 90 cc of fluid food at a time, and even with this amount he complained that it hurt him and made him full, whereas he had been taking 250 cc very readily. The sign was a gradually becoming evident fullness of the belly over the stomach, seen both inside the belly and in the belly wall. Anteriorly, of course, I got by percussion only tympany in this area and behind I could not get any changes from the normal, until, on the sixth day after the closure of the enterostoma, I got dullness and faint breath sounds at the left base in the post axillary line, and some tympany to the left of the

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cardiac dullness in front, but the notes do not record just how high it extended. This was good evidence of subphrenic trouble, and later in the same day we got—for Dr. Rigdon had joined me in the case—the physical signs of fluid in the pleura and proved the diagnosis by withdrawing a syringe full of pus. So a thoracotomy by costatectomy was done—and this revealed the fracture of a rib—the pleura emptied and a finger in found a good sized rent in the postero-external quadrant of the left leaf of the diaphragm, and through it sero-pus and gas came in abundance, its flow being increased by pressure on the belly over the stomach. The infective agent was very plainly the bacillus coli communis. Two tubes were put in, one for the pleura alone and the other transpleural, through the diaphragm and into the lesser peritoneal sac. Later the latter tube alone was needed and its drainage was helped by negative pressure under a Klapp cup. Still later the tube was removed and the negative pressure used to close the sinus, a month and a



Retouched Radiogram—Made Diagrammatic.

The long drainage-tube reaching from the thoracotomy wound down through diaphragm behind stomach and to level of the third lumbar vertebra.

half after the original injury. Finally, after a period of some weeks, and when the boy had become well nourished, fat and strong, he was again etherized and his belly wall incisions, which had closed by granulation, were reopened, all scar tissue dissected out and the usual anatomical layer sutures done.

This ends the story and it has not been possible to shorten it without losing items. There are a few points upon which I wish to make some comments. First. The diagnosis of an intra-abdominal lesion with a massive hemorrhage needs no discussion. As we understand the matter to-day the diagnosis was self-evident. The lesion obeyed the rule of "more lesions of the liver caused by compressive force, than of all the solid viscera in the upper abdomen combined." In the case reports I have found that the sites of the liver ruptures have been various; some on the convexity near the front or near the back, some on the anterior border and some on the under surface. No two have been in the same location, and the cases I have found have been too few to permit of much expectation of

repetition of the location. In my case it seems obvious that the liver was mashed out flat and its under surface torn by the tensile force.

Second. Of course, packing the rent was the legitimate treatment. A suture in such a place would be most difficult and in such a time unjustifiable. In general on the under surface I should prefer the pack to the suture, for it is quicker and quite as efficient as the suture, and as such a case should be drained at any rate, it is merely putting in a deeper and larger and tighter gauze drain. On the border a suture would be more obviously the best selection, but it has to be put in with blunt needles and coarse material. Silk is used, but I should fear a late secondary infection. Lund suggests Kangaroo tendon. Probably coarse chromic catgut, a little softened in water, is the best. Hubbard points out the difficulty of an efficient packing on the convexity because of the difficulty of keeping it in place, and suggests, if the rent is towards the back, packing the wound through a costatectomy and a transpleural opening after having located it by palpation through a medium abdominal incision, and there is much to commend in the suggestion—it would be, however, impracticable, or injudicious, in a patient who was very weak from hemorrhage.

The amount of packing must be enough to make and keep the pressure. As there was no other force available I used much packing and then closed the wound coarsely by a few silkworm gut deep sutures, to hold the gauze in place.

Third. I may have put in too much gauze and so caused the obstruction, but I am more inclined to think the obstruction was due to a kink caused by the hurry of the moment at the time the intestines were returned. In fact I spoke of such a possibility as I thrust them in and expressed the hope it would not occur. One thing is known, the lessening of distention removed the obstruction and not the taking out of gauze. Making an opening low down in the gut but above the obstruction seemed at the time, and still seems to me, to be the thing to do, but the point is debatable. In a stronger person the pulling out of a large mass of gauze adherent to much intestine might be risked, but it surely would shock the patient because of the extent of peritoneum involved. I could not afford to shock for I had no margin in my patient. The less trauma was the little incision. The time at which this opening was made was 72 hours after the first operation, about 48 hours after he began to vomit, 7 hours after the last flatus was passed and 4 hours after it was evident that intestinal gurgling was lessening. I did it reluctantly, and I exhausted medical resources before resorting to it.

Fourth. That the fairly full stomach escaped rupture is odd, and it may not have wholly escaped, for while the reports of the first vomitings said there was no blood in the vomitus, these reports were by inexperienced people, and in the hospital the nurses reported that the earlier vomitings did have a few little streaks of blood in them; they were not enough, it seemed to me, nor constant enough to permit a diagnosis of a stomach rupture; and even if they had been the diagnosis would have been of no practical use, for while I did not put anything into the stomach it was still constantly being filled from the intestine because of the obstruction below. The idea of a rupture of the stomach could be put wholly aside if it were not for the incidence of the subphrenic abscess. But in view of the late development of the septic condition—the symptom complex of sepsis not coming into prominence until the 15th day after the accident, 3 days after the closing of the enterostoma, it can be practically put aside. The abscess was most likely an infected subphrenic hematoma due to a rupture of not great extent in the spleen, or a rupture of a vein in the posterior wall of the stomach, or to blood from the known liver rupture entering the lesser sac by Winslow's foramen. This last seems the least likely, but yet it

is the one which I believe to be the true explanation. It was suggested by one of my associates that the opening in the diaphragm and the hematoma were due to puncture by the fractured rib, but this I think improbable. The fracture was uncovered by chance when the incision was made for the costatectomy. There was no displacement, and the appearance was that of a subperiosteal fracture due to forced flexion of the rib. If it was not for this the explanation would be the obvious one, for it was at just above this place that the wagon wheel was lifted from the ground and rolled up on the boy's back. As regards the diaphragm I think it quite possible that it was torn at its attached border, as the boy was flattened out and his transverse diameter increased by the weight of the wagon. This probable wound in the diaphragm, not wholly healed when the tension of the subphrenic hematoma, infected from the portal vein and changed into an abscess, came upon it and reopened it and so let the pus into the pleura. Rolleston, writing in Osler's Modern Medicine, says that subphrenic abscess in the lesser peritoneal sac—Barnard's "left posterior intraperitoneal abscess" is rare, but it may perforate the diaphragm. He quotes Lang's table of 67 perforations in 173 cases and Martinet's table of 33 perforations in 138 cases, but does not say in what part of the diaphragm the perforations are most common or most likely. A priori one would expect them in the thinner parts in the central tendon where congenital thinnings or openings occur. The opening in my case was in the periphery.

In the radiogram figure which I show you the lower tube is seen to go down as far as the level of the third lumbar vertebra. This extent would suggest an extra-peritoneal abscess and that the tube extended downwards into the retroperitoneal space. But my finger, I was sure, went into the lesser sac, intra-peritoneal, and Gray's Anatomy says that in the foetus the lesser peritoneal sac reaches down behind the omentum to its lower level, but in the adult is closed off by adhesions. Here its extent is between the two limits of infancy and adult life.

#### Discussion.

Dr. John C. Spencer: My personal experience with regard to subphrenic abscess has been confined to one case. That patient, in moderate circumstances, was transferred to a local hospital and the history given of furunculosis just within the nares. Several small and rather serious accumulations of pus were opened with a small knife and apparently the trouble ended. The patient passed out of my sight and finally, after a month, returned with the history of persistent chilly sensations and profuse sweating. There was evidently a suppurative process somewhere, and she was transferred to one of the hospitals. After being under observation for a week, and looking over the case with the aid of Dr. Schmoll, an area of dullness at the base of the left lung and increased vocal resonance with a fairly marked prominence over the last ribs of that side, indicated an accumulation of pus in that region. Upon making a lumbar incision a very large abscess cavity was opened containing probably 500 cc. This connected with the space above and about the upper pole of the left kidney. The subsequent progress was uneventful. The wound healed by second intention, drains were inserted and the patient recovered completely. I regret to say that no bacteriological examination was made as to the exciting cause, but it was evidently a hematogenous process and had traveled from the nose through the circulation and had lodged here and produced the symptoms.

Dr. Pope: The thing which strikes me in the report of this case is the way in which Dr. Sherman followed him up. Most injuries of that sort are reported as antemortem cases. I do not recall having seen such an abdomen ever opened up. Dr. Legge, I remember, reported five or six cases of rupture of the liver, and his seems to

have been the first paper which paid much attention to this crushing of the abdomen. The fact that this child should survive the opening of the abdomen, cleaning out the blood, packing the liver, is remarkable. I am glad that in this case the bowels were not left altogether to drugs. I think it is a great mistake to give castor oil in these cases. With regard to the hematoma, it seems improbable that a normal portal vein should permit of infection of the hematoma. It is more probable that the local peritonitis produced by the gauze, purely mechanical at first, later permitted of infection. The gauze is much more likely to produce and permit infection, and the portal vein, quite a ways off, was likely an innocent party, although it may carry bacteria. There was likely to have been a slight septicemia.

Dr. Sherman, closing discussion: As to the Mayo's method, it would have been impossible for me, in this child, to have stopped to suture his liver, this child could tolerate only the most rapid procedure. The quick gauze packing and the suture in the abdominal wall to give a point of support for the pack proved a practical and successful technique. With regard to the action of the bowels, it seems to me always fair to give a laxative—it is one chance at any rate, and a long while ago I was taught not to play with them but to use them. In case of possible obstruction, I give the big dose first. If it does not go down it will come up, and the question of the utility of laxatives is settled immediately. The use of the Mixer tube is something which I had hoped would be spoken about, for it was a distinctly happy expedient in the case. I have just, however, gotten through with a sad experience in a similar proposition, so my own opinion is divided and I would have liked to have heard its use discussed. The method of infection of the subphrenic abscess is problematic; Dr. McChesney found a reference in which Mr. Smith wrote of the complications of a ruptured liver, and among them subphrenic abscesses; he concludes that the pyogens are brought by the portal circulation to a subphrenic hematoma, infect it and change it to an abscess. I have never known gauze to become the transmitter of infection from the inside of the bowel. We have packed gauze into a ruptured appendix abscess many times and have observed the bacillus coli communis disappear in spite of the gauze. I do not think that packing gauze in the ordinary way against the bowel is going to invite the transmigration of bacteria. In this case there was no frank sepsis in the peritoneum, and if there had been there was still no gauze in his lesser peritoneal sac; and there is no way by which I can easily see that infection could have traveled into the lesser cavity from the larger peritoneal sac.

#### SKELETAL ALIGNMENT AND MUSCULAR BALANCE IN THEIR RELATION TO PAIN, FUNCTION AND DEFORMITIES.

By SAMUEL J. HUNKIN, M. D., San Francisco.

Grace of position, ease of movement, beauty of form, strength, virility, poise and bodily control are to the extreme degree dependent upon muscular balance and skeletal alignment; while deformity, weakness, tire, pain, lamed function and misery follow close upon the heels of unbalance, either of the muscle or of the skeleton. We speak of the muscles as flexors, extensors, etc.: of their abducting an eye, or contracting an orifice, but the one who sees nothing more in their action than this, misses the whole poetry of life; loses the entire beauty of motion. Muscular balance is not a condition simply of equal flexors and extensors, but



is dependent upon the state which permits every alteration in the muscle tension to take place in perfect balance, in beautiful co-ordination, with no jerk, no pause, no lost motion, and is not the result simply of a pull of this muscle, a contraction of that. We desire to move the head forwards, for instance. From the anatomical works one would think the process was something like this—desire from the brain. Attention scaleni. On guard sterno-mastoids. Now, all together. Muscle in front of neck contract! Steady! Hold!!, as if in parody of the German Hochheimer, we were "doll babies."

If the muscles acted as usually described, then the movement would be hesitant and jerky, like the automatic dolls, with a pull to do this and a pull to do that; and this may, and does, happen in diseased conditions, when the muscular balance is lost. Observe the difference in the natural movements. The desire to flex the head arises. Instantly the chin moves downward. There are no muscles thought of. Their position is not comprehended. No idea of the mechanics. The wheels of the machine are neither seen nor heard, but instantly as the head inclines forward, the shoulders move backwards, the loins arch, the hips flex, the knees extend, and the feet go into flexion. Every muscle from head to foot, from complexus to hallucius has changed its shape and altered its balance. Every joint has moved, and the skeletal alignment has been completely changed, yet the balance has been continuously preserved in absolute poise, in beautiful harmony and in perfect time. So natural as a thing of life, every ounce, aye every grain that has been moved forward beyond the center, is exactly compensated by a corresponding ounce or grain moved backward, and the balance ever secured. A mechanical poem in health and youth.

This body of ours is poised on the narrow base of the feet, or on one foot after the other, when progression is being made, as an inverted pyramid, which is forced to change its gravity center, and has as its only security in space, this perfect muscular balance, and its only stability the alignment of the bony structure. Consider the ballet dancer how she spins and curvets. Consider her shape, her grace, her weight: pivoted on a narrow point how she leaps and bounds and curves in delightful harmony, in unstable equilibrium always yet in ample security in the safe protection of this muscular balance. Consider also the architect with the problem of balancing his pyramid on such an apex, and ask him how fast he can move his base, and what would be the effect of a simple leap or gambol on his structure? The maintenance of balance is the direct result of the exact co-ordination of the muscular system acting upon the bony frame. From the builder's and engineer's standpoint this frame should be rigid and unyielding, symmetrical in position and weight, decreasing in strength and solidity from below upwards, with the gravity centrally bestowed. Balance, security and strength are almost inconceivable without this.

Quite different, however, we find the human skeleton; loose in structure and perched on its smallest point. The base, such as it is, is composed

of many small bones, bound together by flexible ligaments, like a handful of pebbles tied together by strings, and allowing some to wobble and some to slip in all directions. The stability of this base it is true is supplemented somewhat by being held in an elastic retaining cup, but this is all. This doddering base, supports on a hinge two uprights, which again support through an extreme hinge, another upright, increasing in strength and weight, contrary to the law, as it rises. This pillar then after having its upper end set off at an angle of about 130° is placed away at the side of the weight to be carried. The weight is then transmitted through the medium of a ball and socket universal joint. This sliding, hinged, wobbly, mal-aligned, unstable structure constitutes our base of support. Two such supports embrace our whole ground contact and the levers on which we stand and progress. It is true that this wobbly affair is to a certain extent restrained by strong ligaments but at the best the ligaments, capsules, etc., permit all the movement, all the insecurity, all the instability described, and more. The truss which carries the weight above, is also broken in the middle and permits of motion in three directions, and this in three separate places, and to cap the absurdity, the weight falls upon this truss posteriorly to the center and through a curve. Again, remember the conditions do not permit of any braces, any supports applied to weak places. Muscles have no stability, no rigidity, can make no pressure but only supply security and strength by their assistances in maintaining balance and position by constant elastic pull and counter-pull; by what is called "tone"; by the exact balance and co-ordination in every fibre; by instant controlled involuntary response to every change of posture; maintaining at all times, in every position, the best possible alignment, strength and control. Such exact balance is almost beyond thought and mechanically impracticable, when we consider the shifting of weights and the transmission of power in progression, even by a gyroscope.

Consider for a moment a muscle during its physiological action. Take the deltoid for an example of what I mean. It is a muscle with a single insertion, is supplied by a single nerve and must be considered as a unit muscle, and yet the range of its power, the multiplicity of its action, the beauty of its control and effect, is marvelous. It is at the same time an abductor of the arm, is an inward and an outward rotator, it is active in pulling the arm backward, and also is an efficient aid to the pectoralis in drawing it forward. Some portions of the muscle are contracting, while others are relaxing, while at the same time other bundles of fibres are maintaining their tone. All the various actions are performed in unison in perfect balance, in complete harmony, yet we remember it receives its innervation from a single nerve. The man who thinks of this muscle as simply contracting to a proper stimulus and again relaxing, until once more stimulated, surely fails to appreciate most of its capacity, and loses all its beauty, balance and harmony. It is not to be presumed that because of this harmonious balance, the muscular bundles

on each side of a bone, equal one another in strength, weight, or capacity, for usually this is not the case. So far as strength is concerned, flexors of a joint generally exceed the extensors, the inward rotators exceed the outward rotators, the adductors are much stronger than the abductors, and the back muscles are more powerful than the abdominal. Yet in spite of this apparent potential inequality, perfect balance maintains. Under what circumstances does this balance remain in harmony? Does the maintenance or even increase of the muscular inequality disturb the balance? No! The balance is apparently governed and maintained by the so-called muscular sense. By what we speak of as "tone" and so long as this remains normal the balance, poise and harmony are always secure. It remains true during the lengthening of growth, after accidents causing the dividing of big muscles and in shortening due to loss of or an overlapping of bone. A moment since and it was said that inequality of opposite muscular grouping did not necessarily disturb the balance, nor prevent alignment, so long as the muscular tone remained, but this tone is at once lost, and this alignment promptly disturbed, if this inequality (be it ever so little), is due to paralysis. Then at once the stronger group masters the situation, steadily contracts and becomes shortened, loses its contractibility, and becomes contracted, while on the other hand, the weaker muscles stretch and stretch, become more and more pulled out and lengthened, lose at length their contractibility also, get pale and weak in their fibres and the paralysis which began in the nerve lesion is increased by the overstretching and the "tone" and balance could hardly be recovered unless the alignment is re-secured even if it were possible for the nerve lesion to be repaired.

May I again emphasize, so that my position may be firmly clinched in your memories, that the paralysis and loss of muscular balance increase as the direct result of the secondary over-stretching, which by the by is a fact to be remembered, when dealing with any form of paralysis and any kind of deformity consequent upon paralysis, especially of the antero-poliomyelitic type. This fact also is one of the things we are up against in the treatment of club feet, although we have here a stronger influence at work in preventing proper alignment, as will be seen later, when we speak further of skeletal alignment. You will then readily see that muscular balance being disturbed, loss of alignment must ensue, and contractions with the production of steadily increasing deformities result.

Looking at the matter from this standpoint it is at once evident what permanent advantages can be expected from tenotomies in joint deformities with contractures. When there is a temporary loss of muscular balance, with subsequent mal-alignment, due to pain, infection, or as the result of injury, with some contracture on the one side and over stretch paresis on the other, as we have spoken of, then tenotomies of the tendons of the shortened muscles, followed by re-alignment, reposition, and the mechanical holding of the proper position, over a period long enough for the over-stretched muscles to recover their tone, may, and usually does, give

happy results: but when done, as it often is, in deformities due to Little's Disease, or more particularly in deformities from poliomyelitis paralysis, "it is to laugh." In such an operation no balance is restored, or rather the balance is not an economic one. It is rather like the balance obtained by the man who, having \$80.00 in one bank and \$120 in the other, got an equal amount in each by taking \$40.00 from the \$120.00 and throwing it into the depths of the sea. A kind of balance to be sure, but hardly to be considered in the interest of economy or conservatism.

It is true that alignment can be secured and deformities corrected under such circumstances, but only at the risk of lost power and diminished control. Also, muscular balance not being secured, or more correctly having been wantonly wasted, proper alignment cannot be maintained except by mechanical appliances, which increase in weight and complexity, in proportion to the power which was foolishly destroyed. As a matter of fact in ordinary practice competent mechanical apparatus is not secured under such circumstances and deformity again, even increased deformity, is the end result. It is folly to seek to remove deformities due to loss of balance and alignment from paralysis, by cutting off most of the remaining power, yet such crude processes are daily practiced. We should rather try to conserve power, alter its direction, change or reinforce it, but never destroy it. Earlier we spoke of yet a stronger influence at work in preventing proper alignment after long continued deformities, than the contracted muscles and the shortened ligaments, etc. I referred then to the effects of what is known as Wolf's law, and it appears proper at this time to consider it for a minute.

*Wolf's Law.* "Every change in the form and function of the bones, or of their function alone, is followed by certain definite changes in their internal architecture, and equally definite changes of their external configuration, in accordance with mathematical laws." That is, parts take on new shape and configuration, when functional strains are changed from the normal, and are again transformed to the normal, when the improper relation of strain and weight carrying have been removed. In fact he insists that the very shape of a bone is caused by the function it is called upon to perform. If the work required is different, then the shape will be different. Not only is the shape altered, but the internal structure is also altered, or as I am in the habit of putting it in teaching, the shape of a bone, as well as its internal architecture, is altered and arranged, entirely with relation to the way strain falls upon it, and the character of the work it is called upon to perform.

If all this is true and it is a law, and in my mind there can be no question of it, then it is therefore very evident that deformities are simply the result of bad static conditions—that is, mal-alignment. Nothing favors and produces deformities like deformities. I shall be glad to have these facts, these laws, kept closely in mind for we shall refer to them later in an attempt to point our arguments.



Such remarks as the following are often made to me in this connection: What has all this to do with the practice of medicine? What has balance and alignment to do with the healing art? We hear what you say about deformities and perhaps admit this to some extent, but we are not instrument makers nor physical culture teachers. Our general patients are not particularly concerned with their shape, or at least do not come to us openly for it. What interest has all this for the practicing physician? I reply: Has surgery anything to do with fractures and injuries, or do you ever treat paralysis in any form? Are you ever consulted by people who are lamed? Anybody ever limp to your office, or does any portion of your work deal with people who use crutches or a cane? Does the relief of pain constitute any particular part of your work of practice? Do sufferers from rheumatism (which I believe in four instances out of five is not rheumatism at all), ever consult you? Then I say unto you that you are especially interested in the conditions spoken of, for no inconsiderable part of the suffering and distress and lameness of these ailments are purely mechanical and are relieved by mechanical aids. Many of them, that is the symptoms of which they complain, are due to a loss of muscular balance, or a lack of proper skeletal alignment. Do I hear you say, What has skeletal alignment and muscular balance to do with pain? What has strain to do with suffering? What has bad alignment in the structure of a building to do with stress, strain and weakness of that building? Try your engineer friends with these questions, and then think yourselves—why should weak feet and pronated ankles be connected with growing pains and rheumatic pains in the knees in children? Why should people with spinal osteo-arthritis have sciatica or any neuralgia? These are questions which come up and are daily asked of me, and the answer is simple. Take a young child for instance, who has feet which pronate at the ankles when the weight falls on them. Follow it for an instant and watch it under strain. The lower end of the tibia slips inward in relation to the foot which is fixed to the ground. The foot of course at once suffers in consequence of the side thrust, and the effect is readily noticed. But follow further; to maintain equilibrium, the knee moves inward, and a genu valgum is produced, which increases greatly the strain on the internal lateral ligament of the knee. This produces strain, irritation and congestion at the epiphyseal line at its most active functioning period. Tenderness and pain soon follow and "growing pains" and rheumatic pains are soon heard of. This pain is oftentimes severe, when the angle at the knee is increased, from muscular spasm provoked by nature's effort to maintain efficiency, in spite of the bad mechanics.

Again, as the result of the epiphyseal congestion, and in response to Wolf's law, there is an overgrowth of the internal condyle, with permanent valgus knee deformity, and a lowering for the remainder of the individual's life of the mechanical efficiency of the legs. At a later period of life the same weak feet, the same bad alignment, the same mechanical sequence is the most common cause of

villous arthritis—probably one of the most common of the diseases you are called upon to treat, by the by (also ordinarily called rheumatism), and which our lack of knowledge offers to our friends the osteopaths a most fruitful field of interest and perhaps the most productive part of their work, and incidentally, although of course of not much interest, loses us a most desirable part of our income. Even this is not all, for the changed angle at which the weight is borne at the hip alters the balance of the lumbar and intervertebral muscles; favors slip at the sacro-iliac joints and backache is a usual result.

Again, a common question is, Why do you think osteo-arthritis of the spine gives rise to sciaticas in cases when the absence of other symptoms offers satisfactory evidence that neither the nerve roots nor the plexus are affected? While not admitting that the so-called satisfactory evidence is at all conclusive of the freedom or involvement of the nerve roots, yet in most cases the alteration of the vertebral alignment offers sufficient cause for the neuralgia. When the hips also are the seat of bony changes, as is often the case, there is usually no question on the point, but where they are not, the vertebral locking is followed by an alignment sequence necessary to maintain equilibrium and secure functional mobility which is sufficient. When bony changes in the vertebra exist the mobility of the column is restricted and its curve is altered, and nature seeking the direction of lesser resistance and anxious to preserve function, compensates for the loss of mobility in the vertebræ, by an increase in motion in the sacro-iliac joints, or by a change in the inclination of the pelvis. As a matter of fact this change can often be easily demonstrated and the sacro-iliac slip detected. Of course when we remember the relation of the sacro-iliac joints to the component parts of the sciaticæ it is readily understood why pain is a frequent result of the mal-alignment and twist of these joints, even when the pelvic branches of the plexus are found free. We need go no higher than this to find ample cause for the pain and a reason for the neuralgia.

In this connection I desire to assert that osteo-arthritic changes in the vertebræ, may be the cause of anesthetics, hyperesthesias or paresthesias, produce atrophies, may inhibit or excite the sexual impulse, and in my opinion may even be the cause of paresis or paralysis, and that the presence of any of these symptoms cannot be conceded as positive evidence of a central or cord lesion, and as ruling out the question of an osteo-arthritic etiology. I am moved to this statement, which I did not know was doubted, on account of its being recently affirmed by men in whom I have great confidence that the presence of some slight paresthesias in a particular case, proved a central lesion and was against osteitic changes, even in the presence of mechanical impediments, which effectually prohibited more than half the normal spinal motion.

A girl twelve years of age appears to-day from Bakersfield. She had poliomyelitic paralysis seven years ago, or when she was five years of age. She is on crutches and progresses after a fashion, carrying some little weight on the right leg. Let us

consider this child for a minute or so, and if possible trace the sequence of events, which as the end result, is responsible for the terrible condition and deformity. Examine her. The left leg dangles in space, with a pendulous swing as she moves, the foot hanging about 20 cm. from the ground, and the leg can readily be put behind the head. Look at the skeletal deformities presented, which in their development completely overshadow the paralysis, and in fact definitely increase the original paralysis and render futile any use of the muscular structures which remain. The hip is flexed almost to a right angle, adducted and rotated outwards, the adductors, from the combined effects of the poliomyelitis and the over-stretching, being flaccid as a piece of wet rag. The knee is flexed to nearly a right angle. The tibia is rotated outwards and partly dislocated backwards and outwards. The foot is hanging in an extreme position of equino varus. The only muscle evident in the whole extremity is the biceps and possibly a tiny amount of a thin tendo-Achilles. With this of course we have the capsules and ligaments, not to mention the vessels and nerves on one side of the ankle shortened, and on the other side lengthened. This added to the overgrowth of the internal condyle at the knee, and the changes in the bones of the foot, especially in the astragalus and scaphoid in the foot, in response to the changes in position and function, as we have before learned, could be expected according to what we know as Wolf's Law. The paralysis, the deformities, the changes in shape of the bones effectually prevent alignment by the ordinary means. The altered alignment in addition to the over-stretching also shuts out any use of those muscle bundles which still may have innervation, and the picture is complete. A useless, dangling appendage, which is simply in the way, an incumbrance which is dragged around by the sufferer. The right leg is also out of alignment at the knee, with a valgus foot. All the muscles are very weak, but present, except the tibialis anticus and posticus which cannot be demonstrated. What can be done for her? Can anything be promised? We believe that proper skeletal alignment can with some difficulty and patience be restored, and probably a functioning position of the leg will soon, with the aid of some simple mechanical aid, allow her to walk after a style. Then later, the better circulation which comes with function, and possibly some restoration of muscular action which will come when the overstretched fibres are given a chance, will probably allow the girl to get around fairly comfortably without crutches. (As a matter of fact, since this paper was begun, this alignment has been made, and some little changes in the insertion of the muscles added, and the girl is now able to walk blocks, alone and without crutches.) You will understand that in this report I am not intending to argue that restoration of skeletal alignment is all that is necessary to re-establish normal function in deformation consequent upon infantile paralysis, for that as you know would be ridiculous, but I am saying, and am intending to say, that the restoration of alignment is a *sine qua non* to the recovery of muscular balance, and mechanical efficiency, and besides this is the most im-

portant step in the first aid to the crippled that we are conversant with at this time.

A few weeks ago there was a man referred to us, 36 years of age, who was convalescent from pulmonary tuberculosis. He, however, had developed a rigid spinal deformity, progressive in type, the so-called "spondylose rhizomelique of Marie." The whole column from the first cervical vertebra to the tip of the coccyx formed one long posterior curve, which increased in curvature from below upwards, and was so rigid that any twist or turn or bend was impossible. The body was so far out of alignment that in order to maintain the biped position it was necessary to keep both hips and knees in flexion, and during the last few weeks a cane was necessary to secure postural balance. Consider for a moment the prospect of the future of this man. Doomed to either a crouched, sitting or a bedridden side position for the rest of his life. Under such circumstances and maintaining such a posture we might naturally also expect a return of the pulmonary tuberculosis, and a somewhat radical procedure was advised and accepted. Under anesthesia we manipulated his spine and loosened its extension and flexion until the restoration of his spinal curves was possible. The position was of course secured by a cast and rest is still maintained. No untoward symptoms occurred and we expect that in a short time the man will be around with a comparatively easy carriage in an erect posture.

Of course the instances I have detailed are those of extremes, intentionally selected, in order that the character of the principles shall be strongly asserted, but the truths are just as definite although not perhaps as evident on a chance glance in rheumatism, in sprains or any of the ordinary affections which tend to lameness and crippling. Let me call to your attention a few of the simple cases which occur in daily practice. All remember the stiffening of the knee which follows so frequently a fractured femur, even when the fracture is in the upper third, so that it cannot be due to callus invading the joint. Neither on the other hand, is the fixing due to the immobilization from your splint, for, take it from me, that rest does not promote ankylosis in joints whether secured or maintained, for repair in injuries or for recovery from diseases.

Take a schoolboy, of an irritable, inattentive type, who tires easily, has violent headaches, is erratic and flighty and perhaps has vomiting spells. What is the cause? My oculist friends tell me this group of symptoms is often due to unequal muscular balance, and is cured by proper fitting glasses. Take the same case with some astigmatism added, necessitating a head tilt, disturbing skeletal muscular balance, and now if a close examination is made you will notice the lack of alignment of the vertebrae and perhaps some rotation, and a scoliosis has begun. Take the growing girl, a rapidly growing girl just before maturity with pronated feet, which you at once note. Pain in the feet? you ask. She replies to your inquiry, "No! I have no pain nor trouble in my feet," but she admits pain in her legs, in the back of her legs she tells, and in the knees too, perhaps at night when she tries to go to sleep, possibly also in the back. She easily gets run



down and out of sorts and has to quit school now and then for a week or two. 'These growing pains annoy her quite a good deal. God save the mark! Growing pains! Growing idiocy! Utter and incontestable nonsense!! Pain means decay and death, and has nothing to do with youth and growth, life, energy and development. What then? What is the matter? Examine her again, and ten to one you will find that besides the sagging feet she is knock-kneed, her tibiae are perhaps curved, her back has sagged, her shoulders are hanging forwards, and she is lucky if a scoliotic torsion has not also begun. Poor child, no wonder she has pain and is tired. Her whole skeleton is out of alignment, her balance is interfered with, her stress and strain increased and the whole organism suffers. The growing pains forsooth are nature's cry for relief from the strain and distress of mechanical inefficiency.

Allow me also to detail for your consideration a case which is repeated many times a year in my practice. A football player during the press of the struggle injures his knee and is carried, or limps, from the field. The knee is shortly found swollen, tender, fixed and has a little lateral motion. The internal lateral ligament is torn, perhaps there is also a rent in the capsule, or even perhaps a rupture of a crucial ligament has occurred. The cavity of the knee is soon filled with fluid, blood perhaps or a serous fluid. This is the damage. Consider the minor degrees only. Such a pathology could not be reasonably expected to undergo repair in less than a month or six weeks, and the indications of mechanical treatment would be to secure extension as soon as possible, to maintain rest in all its phases at first, and later (three to four weeks say) to give a little movement, but at all times to consistently prevent abduction at the knee, that is to maintain rest, balance and alignment, especially alignment during the whole process of repair. What was done? What is usually done for such cases? He is put on a measly, narrow, posterior splint which made a pretense of immobilizing, and lead and opium compress applied. So far, not ideal, but fairly satisfactory, but within ten days he was walking or limping around on the leg without any attempt or advice regarding skeletal alignment. Look at the position of the limb during use. You have often seen such cases. Consider for a moment: knee slightly flexed, the thigh slightly rotated outwards, the leg more so, the foot turned almost straight out and pronated, throwing all the stress on the inner side of the knee and the man has a torn internal lateral ligament; allowing the tibia to slip backwards and outwards and there is probably a torn crucial ligament. Is it any wonder that after a lengthy convalescence the man is prone to other similar attacks and eventually has a "pretty bum" knee to carry through life? How many such instances have each of you seen? Let your skill be ever so much, let your technic be perfect, yet your surgical sense cannot be considered keen unless this matter of alignment, balance, stress and strain be always in mind.

You remember also the pains in the feet, legs and knees when your patient first gets up after typhoid, acute rheumatism or any weakening illness, all due

to the same thing, loss of muscular tone, and all remedied by maintaining the proper alignment. You will notice that I am not discussing particularly the pathology of the conditions used as examples, for the limits of this address do not permit. I am only considering, regardless as it were of pathology and etiology, the crippling, lameness and deformity of skeletal mal-alignment, and unequal balance, with the approach as it were towards use and function, when a functioning position is maintained. Yet greater and more lasting effects even than before suggested are often obtained, for nothing in my opinion will increase muscular balance, strength and efficiency like unto use and exercise and this cannot be done when the alignment is badly out. Nothing increases the function of a part, and nothing so favors repair, and a return towards the normal, as the use of the part in as nearly a natural position and condition as possible. Who that has ever seen the weakened, stiffened muscles, the knock-kneed, sagged-footed rigid-gaited, amble of a convalescent typhoid patient, and compared it with the slick, elastic-muscled gait and the erect, easy carriage of the same individual after a few weeks' exercise in mountain climbing, can doubt the truths of the statement that use in a proper functioning position favors function, repair, virility and energy, and promotes muscular balance and skeletal alignment, health, wealth and happiness?

#### ABDOMINAL MYOMECTOMY DURING PREGNANCY.\*

By C. A. von Hoffmann, M. D., San Francisco.

In answering the question, how to treat myomata of the pregnant uterus, almost all physicians agree upon an expectant treatment, as long as no severe or dangerous symptoms appear. Experience has shown that in most cases nature helps herself and that the child is born alive. When it is necessary to interfere the treatment or operation is comparatively easy. In a few words I shall give the outlines of the treatment.

If the myoma grows from the cervix and is an intravaginal tumor, the tumor will not interfere with pregnancy and can be left alone. During labor, the tumor, if not too large, can be compressed and the child will pass by. If the tumor prevents the child from passing it has to be removed per vaginam. A pedunculated tumor is removed easily by cutting the pedicle; if the tumor is in the substance of the cervix, the capsule should be split and the tumor enucleated,—an operation which would be vaginal myomectomy.

Myomata of the body and fundus of the uterus will cause grave symptoms only under peculiar circumstances. As a rule they can be left untouched till labor commences. Interference during pregnancy is necessary only when they grow very rapidly. Sessile tumors connected with the uterus by a broad basis can be cut off and the raw surface covered with the uterine peritoneum. If the tumor is pedunculated, operation will be necessary, when symptoms of torsion of the pedicle appear or when the mobility

\* Read before the California Academy of Medicine.

of the tumor is so great that the tumor may get between the intestines and cause a great deal of pain or obstruction of the bowels. The operation would consist simply in dividing the pedicle and covering the wound with peritoneum. Another indication for operation would be, if a myoma becomes malignant. This indication will occur very rarely and it will be very difficult to make the correct diagnosis. Softening of the tumor and ascites would be suspicious symptoms.

Submucous fibroids could not be operated upon without interfering with the pregnancy and their influence is noticed more after labor, provided they did not cause abortion during the first few months. Complications during or after labor like hemorrhages or sloughing of the tumor I shall not speak about.

Besides those already mentioned we have the interstitial fibroids, which can be removed only by abdominal myomectomy, the operation I want to bring before you. In a short résumé I shall mention other operative procedures as Cesarean section, supravaginal amputation and total extirpation.

The operation of myomectomy consists after opening of the abdomen in splitting the peritoneum and capsule of the tumor, removing it out of its bed and closing the cavity in tiers. It is absolutely necessary to be very careful to arrest all hemorrhage. After the edges of the incision are closed, the peritoneum should be made to cover the last row of catgut sutures by another row of sutures including only the peritoneum.

During the operation the uterus should be handled as little as possible. Abortion does not very often occur after this operation, even when the endometrium and the membranes of the ovum have been exposed. This has been reported in a few cases. In almost 80% of myomectomy pregnancy remains undisturbed.

If we ask, what are the indications for abdominal myomectomy during pregnancy, we always have to remember that simply the presence of an interstitial fibroid is not an indication for the operation. If the tumor is situated in the upper part of the uterus it will not interfere with pregnancy and very seldom with labor. Myomectomy would be indicated only when there is a single tumor and this tumor grows rapidly, causing symptoms of pressure, when the pain in the tumor is such that it affects the patient's general health or when the symptoms of malignancy appear. In this case the question would arise, if it would not be better to remove the entire uterus, especially towards the end of pregnancy, when it is possible for the child to live.

Between the body of the uterus and the cervix we find during labor the so-called lower uterine segment. This is that part of the uterus which is below the contraction ring of Braune and corresponds to the portio supra vaginalis colli uteri, if we divide the collum into the two parts—the portio infra vaginalis and portio supra vaginalis.

A myoma which grows from this part of the collum uteri will grow either into the broad ligament or if it grows from the posterior wall towards the Douglas, it will always be covered by peritoneum

on its upper surface. During pregnancy these tumors are found below the child and during labor seldom move upwards allowing the head to pass. Under favorable circumstances they can be operated upon at the time of labor from below, but as a rule after attempting to remove them from below, laparotomy is necessary to reach them successfully.

If we find during pregnancy a myoma growing in the supravaginal portion of the collum uteri the operation of abdominal myomectomy should be considered as a prophylactic measure to make the labor normal.

Another indication for abdominal myomectomy is severe pain in the tumor and uterus as found in my cases. The cases I saw are the following:

Case 1. Mrs. C. B. J., Fort Bragg, age 34. Was sent to Dr. Charlotte Blake Brown in March, 1902, with an abdominal tumor for diagnosis and care. On examination it was decided that the patient was some four months pregnant and also suffering from a large sized myoma of the uterus which was causing her great pain and was situated low enough in the uterine wall to form a possible obstruction to delivery. The patient was informed of the risk of the operation in regard to the life of her child, but was suffering so severely that it seemed advisable to undertake the removal of the tumor. Dr. von Hoffmann was consultant in the case and operated on the patient. The tumor was the size of a large orange, situated in the lower third of the uterine wall to the front and the pressure was being made by it against the pelvic brim. It was decided to do a myomectomy, taking the possible risk of thereby inducing a miscarriage. The uterine wall was split over the tumor and an enucleation done. The cavity closed in layers with chromic catgut and the peritoneum as well. The abdominal wall was closed and the patient made an uninterrupted recovery, feeling life some two weeks later and returning to her home where she was confined at 9 months of an eight-pound boy and has been from that time on in perfect health.

Case 2. Mrs. N., patient of Dr. Lewitt in 1903. She was pregnant for the first time. Pregnancy had advanced to 5½ months when on Nov. 1st she complained of a severe pain on the right side of the abdomen. On this side a tumor could be felt near Poupert's ligament and the fundus uteri was pushed over to the left side. Patient suffered besides the pain in the tumor, from flatulency, no temperature. The pain continued from Nov. 1st to the 19th, requiring ¼-¾ gr. of morphine a day to keep the patient quiet. She was unable to sit up in bed without pain. Nov. 20th. Laparotomy and removal of a fibroid, size of a goose egg. No peritonitis or appendicitis was found. Contractions of the uterus commenced soon after the operation. Morphine was given. The next day, Nov. 21st, at 4 p. m. membranes appeared at the entrance of the vagina, and twins, male and female were born. The patient recovered from the operation and miscarriage without any unfavorable symptoms.

A few months after operating on this case I saw a patient pregnant about 4 months with multiple fibroids of the body of the uterus, who suffered so much pain constantly that morphine had to be used every day. After waiting for almost a month without any change, I advised operation, but miscarriage took place before preparations could be finished.

Case 3. Mrs. C. E. Gr., Portland. Was sent to me by Dr. Gallimore, San Jose, Dec. 16th, 1908. Patient married in July, had the last menstruation Sept. 1st. She had noticed a tumor size of an egg in left side; the uterus corresponding in size to the time of pregnancy was quite movable, appeared to be more in the large pelvis and higher than the normal. Patient thought that she could feel the tumor sometimes in right side. On examination the tumor was



found quite movable and the diagnosis of pedunculated fibroid was made. On Dec. 24th, 1908, laparotomy showed the tumor to be an interstitial fibroid growing from the left and anterior surface of uterus below internal os. Peritoneum and capsule were divided, tumor peeled out of its bed and the usual sutures applied. After the operation the patient felt slight uterine contractions, morphine gr.  $\frac{1}{4}$  was given and four hours later another  $\frac{1}{4}$ . No more contractions were felt and the patient was comfortable, highest temperature  $99^{\circ}$  by rectum. During the first week of January she felt life. Confinement took place in Portland at the regular end of pregnancy and was perfectly normal.

As a résumé I should say that treatment during pregnancy is expectant excepting in cases where there is a quick growth of the tumor, a change to malignancy, torsion of pedicle or severe pain. To these indications I would add as another important indication the seat of a myoma in the supravaginal part of the collum uteri. Abortion in these cases does not seem to me advisable,—it is too uncertain in its effects and leaves the unhealthy condition. Removal of the tumor should be the intention of any operation, if possible leaving the uterus and pregnancy undisturbed. This will be possible when we find only one myoma, pedunculated or interstitial. If the myoma is submucous or if there be multiple fibroids supravaginal amputation or total extirpation should be done during the earlier months of pregnancy. In the later months to save the child's life Cesarean section should be done, after which the uterus could be amputated or removed entirely.

During labor, myomata of the cervix, if not too large, can be left alone and removed later on. If preventing the birth of the child, the tumor should be removed by cutting the pedicle, if there be one, or by vaginal myomectomy.

The myomata of the collum of the uterus often ascend out of the pelvis and leave the passage free for the child. This procedure can be simulated by manual reposition, trying to push the tumor up, but the stretching of the lower uterine segment always includes the danger of rupture of the uterus. To force the passage of the child with the tumor in the pelvis by the use of forceps is not advisable as the compression of the tumor will be the cause of hemorrhages into the tumor and subsequent sloughing.

If the attempt to push up the tumor proves unsuccessful the tumor should be removed either by incising the capsule and enucleating it through the vagina, a procedure which is very similar to vaginal Cesarean section, or if the obstacles are too great to remove the tumor from below, laparotomy should be done and either myomectomy or Cesarean section. If in such a case the child is dead or if the mother has temperature and shows signs of infection, total extirpation of the uterus is advisable.

If during confinement we find one or several myomata in the body or at the fundus of the uterus, it will not be necessary to interfere. The contractions of the uterus are in these cases generally irregular and labor will be tedious, but could be shortened by forceps as soon as the cervix is dilated.

Thus we see that myomata of the collum of the uterus are more liable to give complications and their removal during pregnancy will more often be necessary than the removal of any other variety of myomata.

## Discussion.

Dr. A. B. Spalding: I see very little to discuss in this paper because I agree with what Dr. von Hoffmann has said. One point, however, is the extreme difficulty often met with in making a positive diagnosis in cases of submucous fibroids of the uterus complicating pregnancy, as to whether pregnancy is actually present or not. I know of one case where pregnancy was diagnosed. The patient went to another operator and the abdomen was opened. Then with the uterus in the hands of the operator, the diagnosis of pregnancy was made. I have seen several such cases which were very difficult to diagnose. Once I assisted in a doubtful case where after the abdomen was opened, the operator was unable to decide between fibroid and pregnancy. The operator decided on pregnancy and refused to proceed with the operation. One assistant agreed and I disagreed. Several months afterward operation was again performed and again on opening the abdomen it was thought the uterus was pregnant. A hysterectomy was done, however, and the uterus opened. What simulated pregnancy so closely was a submucous fibroid about the size of a child's head. Another case where we had the uterus out and did not dare to open it, afterwards showed submucous fibroids. I think this is a thing we should remember in criticizing other operators for mistakes made in diagnosis. It is extremely difficult to make out the condition present and we should be charitable toward those operators who make mistakes.

Dr. H. B. A. Kugeler: The point of diagnosis between pregnancy and fibroid of the uterus, is very interesting. I have just had that sort of experience and the difficulty is particularly in those cases where the fibroid has undergone myxomatous degeneration. I have a specimen now which looks for all the world and with all the symptoms of pregnancy and even with the abdomen open the diagnosis is very difficult. Then, in those cases of pregnancy complicated with a fibroid, the most interesting case I ever saw was one which Dr. Ryer diagnosed and when we had the abdomen open I saw the two masses—one a three months' pregnancy, and asked which I should remove. The tumor and the pregnant uterus were exactly the same size and it was difficult to tell where the one began and the other ended. It was a great question to decide which one we should take out. Fortunately we took out the tumor and pregnancy continued normally until the eighth month when all of a sudden she became eclamptic and the fetus came away dead. The woman had slow convalescence but gradually recovered and has since had two children perfectly normal in every way.

Dr. von Hoffmann, closing discussion: The question of diagnosis is certainly very difficult, and I think that every one of us who has ever handled any of these cases has made mistakes. No man can get up and say that he has never made a mistake for there is no way of finding out the existing condition except by waiting. You will find it impossible sometimes to make an exact diagnosis, and if the patient's life is not in danger there is no reason why you should not wait developments. If the life is in danger then the patient will have to be operated on and the child may be lost. We all know the changes which take place in the uterus during pregnancy—they will not take place in the case of a fibroid. Where there is a fibroid the patient will menstruate more or less; during pregnancy she will stop entirely. The only way to find out is to wait four, six or eight weeks, as long as the woman's life is not in danger. Introducing the sound will give only a suspicion when the uterine cavity is longer than normal. In cases of fibroid the uterine cavity is often longer, but the shape of the uterus will in many cases give suspicions that pregnancy may

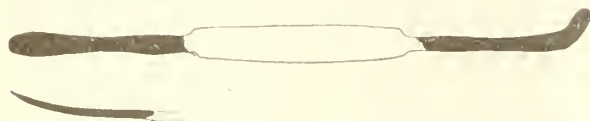
exist. That the sound can be used the first or second month without producing an abortion, there is no doubt. In the later months naturally the sound would not slip in without interfering with the connections between the membranes.

### A SIMPLE TONSIL DISSECTOR.\*

By PERCY SUMNER, M. D., San Francisco.

Nothing original is claimed for the instrument presented—it is simply an adaptation from other instruments, making, I believe, an excellent instrument for the removal of the tonsils.

Ten or twelve years ago the surgeons of London, England, were enucleating tonsils with the finger, a method that is advocated to-day by some surgeons; but I think most of us are agreed that it is better and cleaner to use an instrument for that purpose, when that instrument will do all that the finger does, and more. This idea of using an instrument is shown by the Schmidt Pillar Splitter, and later by the tonsil dissector of Yankauer. The former is excellent but not sufficient for all purposes; the latter is so large that I have found when placed in a small mouth the operator cannot see what he is doing. The first essential about any instrument used in the throat is that it shall be so shaped that it will not interfere with the view of the surgeon, and this instrument fills that requirement exactly. The second important consideration is to combine as much as possible in one instrument a number of features so that it will be necessary to use only a few instruments; and the shape of this instrument makes it possible to do things for which one usually needs extra instruments.



The instrument is patterned on the style of the Allis Dry Dissector. Dr. F. J. S. Conlan of this city had been using this instrument for dissecting tonsils, and when I saw it I felt the possibilities in it. The hook part of the instrument was made thinner and lengthened, and the other end in addition to being lengthened and made thinner was given a curve similar to a pair of curved scissors that I had been accustomed to using for the operation.

The instrument has now been used on a large number of patients with excellent results, and I do not see at present how it can be improved. It is so made that one has an uninterrupted view of the field of operation, a matter of great importance in a child's throat, and the two ends curved on the side and on the flat make it possible to dispense with all other dissectors.

My method of doing the operation is to cut the mucous membrane over the anterior pillar from the tongue around to the posterior pillar with a sharp knife (the knife I find best for this purpose being the Douglass Crypt Knife, with the blunt point ground off, which gives a sharp razor edge that cuts

readily into the mucous membrane, and with the dissector the posterior pillar is easily torn through and the adhesions severed enabling one to apply the snare over a tonsil that is free excepting the attachment at the base.

I am indebted to Dr. F. J. S. Conlan for first seeing him use the Allis Dry Dissector for tonsil work and for the many suggestions he has made during the time that I have been perfecting my tonsil dissector.

The instrument is made by H. Weniger, 244 Ash avenue, San Francisco.

### REPORT OF A CASE OF THROMBOSIS OF THE CENTRAL RETINAL VEIN.\*

By E. W. ALEXANDER, M. D., San Francisco, Calif.

The appearance of thrombosis of the central retinal vessels suggests in most cases a widespread pathological condition of the vascular system, and from such a standpoint I report the following case:

The pathology and etiology of this condition are subjects which are still disputed, partly because of the infrequency of the condition, and partly because it is seldom that one has the opportunity to examine such eyes anatomically soon enough after the onset to be sure that he is studying the primary and not the secondary lesions, which are so frequently associated.

As evidence of the variety of pathological findings offered in explanation of thrombosis of the central retinal vein I will quote from Parsons' "Pathology of the Eye": "(1) Thrombus of the vein, (2) occlusion of the vein by proliferation of the intima but without thrombosis, (3) multiple thrombi in the retinal veins, but without a thrombus in the central vein, (4) multiple emboli or perhaps thrombi in the retinal arteries, (5) changes in the retinal vessels sometimes amounting to occlusion but not the result of either thrombosis or embolism, (6) hemorrhage into the substance of the optic nerve." Such a variety of findings seem to point to one of two facts, viz.: that the etiology cannot be founded on any one circumstance, or that the clinical picture is symptomatic of several pathological changes.

In answer to the question "What general and local conditions favor the occurrence of thrombosis of the central vein?" Parsons states that chief among the causes of thrombosis of the central vein must undoubtedly be counted angio-sclerosis. But we must consider as well the broad principles of thrombosis which are interesting even if largely theoretical. There are certain biochemical agents which play a varying role: certain substances in the blood which favor coagulation such as thrombokinase, calcium, salts, etc.; again the chemical activities may be the result of bacterial growth such as typhoid, lobar pneumonia, plague, hog cholera and diphtheria, which favor the formation of hemoglutinins. The same is true of intoxications from vegetable poisons, rioni, tetanus, etc.; also eclampsia and carbolic acid poisoning; and, finally certain forms of toxic processes associated with blood destruction. From a mechanical standpoint the factors

\* Read before the San Francisco County Medical Society, August, 1910.



which will cause a slowing of the blood current or roughening of the blood vessel walls are important.

The classification of the etiological relationship of various diseases in 96 cases from Mannaberg's statistics give one some idea of this phase of the subject. The cases referred to were taken from 1800 autopsies in the Pathological Institute in Vienna. In 39 instances thrombosis was associated with infectious diseases, in 19 new growths, in 6 marasmus, in 1 chlorosis, and in 1 nephritis.

Particularly interesting in the consideration of the etiology of my case is the association of thrombosis with heart disease and malaria. Osler says of thrombosis in cardiac diseases, "Peripheral venous thrombosis is not very frequent if we judge from literature, but is perhaps, as Welch suggests, not infrequently overlooked." Welch's analysis of 28 instances shows that the complication attacks females more often than males, occurs most frequently between the ages of 15 and 30 and is almost always associated with lesions of the mitral valve. "The vessels involved are generally in the neck, head and upper extremities. Thrombosis from malaria, both venous and arterial has been reported, but doubt exists as to whether the diagnosis of malaria was correct."

#### Report of Case.

Patient male, aged 48; occupation, mining engineer; no history of venereal disease, tobacco heavy, alcohol moderate.

History: 24 hours before consultation patient experienced a sudden defect in vision of O. S. while writing at his desk. He had had similar "attacks" in the past at irregular intervals, but lasting only a few minutes. For ten months previous patient had been conducting a surveying expedition in Mexico, during which he frequently found it necessary to tax his strength and endurance; in fact, his business had for a number of years carried him into regions where unusual exertion was called for. For a large part of his recent trip he had been suffering from the so-called "West-coast fever," during which he had a daily rise of temperature to about 102° in the afternoon, and subnormal temperature in the morning. He reports that no plasmodia had been found in his blood. His weight on arriving in San Francisco was 30 lbs. below normal. On his trip up the coast from Mexico he took 60 grains of quinin, and the two days before his defect of vision he took 10 grains.

Examination May 26th:

Pupils small, equal, react normally.

Tension normal; conjunctiva normal.

Javal 0.50 axis 90 O. U.

Vis. O. D. 6 w + 0.25 = + 0.25 axis 75

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O. S. 6 no improvement with glasses.

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Central color vision normal.

O. D. mediae and fundus normal.

O. S. mediae apparently normal. Fundus shows the thrombosis of the superior and inferior temporal veins. Hemorrhages very numerous but limited largely to course of veins and extending to the periphery. Edema of the retina moderate but widespread on temporal side. Arteries apparently normal in caliber, but with excess of reflex and causing some indentation of veins at crossings. No hemorrhage along course of arteries. Disc somewhat hazy on temporal edge, otherwise normal.

June 14th.—O. S. V. 6—Veins still very large and

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7

hemorrhages apparently as numerous; edema of retina less.

July 2nd.—Veins only moderately enlarged; hemorrhages practically all absorbed.

O. D. V. 6

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5

O. S. V. 6

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5

Physical Examination.—Heart enlarged 1 inch to right of right sternal line and 1/2 inch outside of left nipple line, with mitral regurgitation. His liver was enlarged, spleen not palpable, and peripheral vessels thickened, urine and blood were normal.

The predisposing causes of his condition were his cardiac disease, the infectious fever, which was indefinite in character, the large doses of quinin tending to spasm of the vessels, and arterio-sclerosis.

The exciting cause is obscure, and the rank of importance of the role played by the various predisposing causes is hard to fix. We know that cardiac diseases and infectious fevers cause thrombosis of the peripheral vessels, and can conceive that a spasm of the vessels might lead to a thrombosis, but probably the most important condition here was angio-sclerosis. The patient certainly is a candidate for angio-sclerosis due to his occupation, his chronic heart, and excess of tobacco. The sclerosis of course might be local, as mentioned by Fridenberg and others, but in my case it was of a general character. Further, Fridenberg says the angio-sclerosis develops "as a primary thickening of the intima due to cell proliferation, increase of elastic elements, or a connective tissue deposit on the inner surface of the vessel wall. The changes may be combined or succeed one another. Hyaline sclerosis is, however, the most common form in the retina. Deposits of lime, fatty cholesterol, or amyloid may be found in the proliferating intima, but mucoid, atheromatous and ulcerative degenerative processes are unknown. The media is not affected."

Arterio-sclerosis not infrequently causes transient amblyopia or even amaurosis due to a spasm of arteries. This lasts from a few minutes to several hours and recurs as frequently even as 100 times in one day, as in a case reported by Leber. There is a possibility that a spasm was the initial step toward thrombosis in my case, but the association of arterial changes seem rather far-fetched to venous thrombosis, and spasm of the veins is also rather improbable.

The improvement of vision might have been due to a canalization of the thrombus. This has been proven anatomically by Coats and Sidler-Huguenin. To conclude that the whole picture was due to a prolonged spasm, or that a collateral circulation in the vicinity of the circle of Zinn may have re-established the nutrition in the macula region are other theoretical explanations.

The absence of glaucoma, which is a frequent complication with a central thrombus, is consistent in as much as only the temporal branches were involved.

The occurrence of this accident certainly should indicate to the patient that his strenuous life has caused widespread pathologic changes in his vascular system and that further excessive exertion should be curtailed, as well as the use of alcohol and tobacco.

#### Discussion.

J. R. McMurdo, San Francisco: It is a question in my mind whether an embolus did not arise from the mitral valve, being carried into the central artery. In some instances thrombosis of the central vein has a similar appearance to embolism of the

central artery. The hemorrhages would look like an exudation from the plugging up of the vein.

C. S. G. Nagel, San Francisco: I should like to say that thrombosis of the central vein is, in the majority of cases, universal, according to my experience. I can remember offhand 8 or 10 cases, and I should say that in less than 1 per cent. the thrombosis was limited to one or more branches of the vein. Complete recovery, as in this case, is not the rule. Regarding the etiology, I think it is of perhaps great practical interest, from a prophylactic standpoint, to remember the occurrence of venous thrombosis in connection with erysipelas. We are indebted to Knapp for an observation which clearly shows that through thrombosis the orbital veins, thrombosis of the central retinal vein can take place which subsequently leads to optic atrophy even, as in several cases reported, in both eyes. I myself have seen a case of double atrophy following erysipelas, and one unilateral. In conclusion I should like to briefly report, in connection with this paper, the history of a patient I saw about two weeks ago for the first time, which is unique. I am indebted to Dr. F. W. Birch of St. Luke's Hospital for the examination. The general condition is not yet well investigated. There is arterio-sclerosis, and as the principal symptom a central scotoma in each eye. In both eyes the ophthalmoscope shows along both upper temporal veins, degenerated roundish patches somewhat resembling in general arrangement the hemorrhages in Dr. Alexander's picture, only closer to the veins. In addition, in the macular region of the left eye, there is a rather diffuse hemorrhage which would not admit by mere inspection of analysis. Near the macula of the right eye there is a thrombosis in a small vein and two round hemorrhages near that vein and several streaky ones; one can follow out this empty vein into its major branch which is apparently normal, the upper and lower temporal veins are distended.

E. W. Alexander: I reported this case principally to illustrate the value which a study of the retina has in the general medical cases under our observation. There has been a great deal written in literature on this subject recently and its value, particularly in the way of prognosis and prophylaxis, is very important not only in the vascular system in the brain, but in the kidneys and other parts of the body. This case is very apt and appropriate in that line. The question of embolism as such and obstruction to the central retinal vessels can be divided into two schools—one which claims that there is no such thing as an embolus, even of the retinal arteries, these are the continental students, Ilaab and Reimar, and the English school which claims that though embolus is very infrequent, it has occurred in some six reported cases. Anatomically with very few exceptions, these cases, then, have been proven not to be absolute embolus, but as is generally, due to angiosclerosis. The frequent floating of small bodies into the retinal vessels cannot be accepted in view of the improbability of their entering one of the small vessels in such a far off part, and the fact that the ophthalmic artery branches at right angles from the carotid. Clinically this case is clearly a thrombosis. There are no retinal lesions in the periphery. In this case an absolute diagnosis could not be proven without an anatomical examination. Partial thrombi practically always clear up—and rather rapidly.

### XANTHELASMA.\*

By D. FRIEDLANDER, M. D., and G. H. MIZE, M. D.,  
San Francisco.

Xanthoma was first described by Rayer<sup>1</sup> and the clinical picture is the same to-day, as it was when portrayed by him in 1835, but much has been added

to our knowledge of the histopathology and etiology of the affection. In view of the comparative rarity of the cases reported, Crocker<sup>2</sup> finding only four cases among 15,000 skin cases, and Cooper Dermatological Clinic only eight cases in 3,000 patients, we have presented a résumé of the cases with microscopic preparations of this condition.

Undoubtedly the small percentage of cases is due to the fact that the disease is not of sufficient severity, itself, to call for dermatological services, and is only met with incidentally.

Hutchinson<sup>3</sup> limits the term Xanthelasma to the form of growth involving only the eyelids and contiguous tissues, while under the term Xanthoma he includes all cases in which the growth appears on the trunk and limbs. He further classifies cases of Xanthelasma under the following subdivisions:

First; *Xanthelasma Planum or Flavum*; in which the predominant symptom is the wash-leather type originally described by Rayer.

Second; *Xanthelasma Sebaceum*; in which comedones are present.

Third; *Xanthelasma Cysticum*; in which cysts accompany the xanthelasma.

Fourth; *Xanthelasma Pigmentosa*; in which dark pigment is the only condition present.

The cases which we have to report are of Xanthelasma Planum Palpebrarum and were observed in Dr. Friedlander's Dermatological Clinic at Cooper Medical College.

Under the term Xanthoma is included a less common affection which may involve the skin surfaces of the trunk and limbs, and also the peritoneum and mucous membrane,<sup>4</sup> eyelids,<sup>5</sup> endothelium of the heart and blood vessel,<sup>5</sup> cornea,<sup>6</sup> esophagus, capsule of the spleen and liver,<sup>7</sup> mouth, lips, tongue, trachea and bile ducts.

Xanthelasma usually appears first on the eyelids, but may subsequently spread to other portions of the body, and this occurs in about 7% of the cases<sup>13</sup>. Pye-Smith<sup>4</sup> reports a case in which the malady involved the peritoneum and mucous membranes and Leube<sup>5</sup> reported a case where the heart and blood vessels were subsequently involved, causing valvular lesions. Von Graefe<sup>6</sup> demonstrated three cases in which a similar condition involved the cornea. In Lehzen and Kauss's<sup>9</sup> case there was found on the side of the mitral valve facing the aorta, a continuous chain of four Xanthoma plaques, each one-half inch in diameter, of a bright yellow color. Both coronary arteries, particularly the left, were the seat of numerous yellow deposits the size of a pinhead.

Xanthoma Palpebrarum or (Xanthelasma) constitutes by far the greater number of cases of Xanthoma, Pollitzer<sup>10</sup> estimating its ratio to the generalized form as 100 to 1.

It practically always occurs in the form of plaques on the base of a pigmented area, usually commencing near the inner canthus of the left eyelid,<sup>7</sup> although in two of our cases it started on the right lower eyelid. It increases slowly in size and, by the coalescence of individual plaques, it may entirely surround the eye and it is only a question of time until the lids of the opposite eye are affected.

\* Read before the Cooper College Science Club, February 6, 1911.



The plaques, which are imbedded in the skin, are slightly raised above the surface, sharply defined, smooth, opaque and yellow, although, viewed with a hand-lens, each patch appears to be composed of numerous, crowded, small yellowish spots each with a central reddish point.<sup>7</sup> The epidermis over the patches is normal,<sup>11</sup> and the internal patches are identical histologically with the external.

While the lesions are usually devoid of sensory disturbances, Stelwagon<sup>7</sup> states that occasionally the patient complains of a burning sensation at the site of the plaque.

Almost all authors agree that the color of the patches is mainly due to an accumulation of fat, although a considerable quantity of brown and yellow pigment in the interstices between the cells assists in the production thereof, while Kaposi<sup>12</sup> maintains that the yellow color depends on a collection of oil granules, which is a true deposit of fat, leaving the surrounding tissues unchanged in structure and capable of active function. Chauffard<sup>25</sup> and Pincus and Pick<sup>24</sup> claim that this deposit is not a true fat, as it differentiates under Sudan III and osmid acid from the normal cutaneous fat.

The Xanthelasma patches may occur without any demonstrable etiological factor, but they usually appear on persons having a dark complexion and are most commonly associated with some general condition capable of producing a pigmented areola around the eyes,<sup>14</sup> such as pregnancy, any lesion causing jaundice, various disorders of the liver, ovarian changes, nervous fatigue,<sup>13</sup> or gout.<sup>2</sup> In Hutchinson's patients 50% suffered from migraine and 16% had jaundice, and of our eight cases four had jaundice.

Jaundice frequently precedes Xanthelasma Palpebrarum and is almost invariably associated with the generalized exanthema. Crocker estimates that 80% of the cases of generalized Xanthoma are accompanied by jaundice, and twenty-three out of twenty-eight cases reported by the London Pathological Society were so affected,<sup>7</sup> also Kaposi<sup>12</sup> found jaundice in 15 out of 27 cases of generalized Xanthoma, and Champard<sup>23</sup> found it present in 22 out of 58 cases.

Various causes of jaundice have been reported, as cirrhosis of the liver in its different forms,<sup>6</sup> syphilis of the liver,<sup>4</sup> gall stones in the hepatic duct,<sup>3</sup> hydatid cyst,<sup>3</sup> carcinoma of the junction of the hepatic and common ducts, with secondary growths in the liver,<sup>17</sup> and stricture of the hepatic duct due to carcinoma of the liver with involvement of the lymph glands around the duct.<sup>30</sup>

Chauffard,<sup>25</sup> following the lead of Pincus and Pick,<sup>24</sup> claims the condition has, for an etiological factor, a true cholesterinemia and very aptly compares the process to gout. The Xanthelasma plaques correspond to the tophi; the cholesterinemia to the uric acid in the blood; furthermore both affections are constitutional, and, to further carry out the analogy, the only beneficial treatment of the local lesions, in both cases, is surgical; and that of the constitutional condition, prophylactic measures.

The disease affects females most frequently,<sup>7</sup> and the proportion of females to males varies according to the statistics of different authors, some stating the ratio to be 3 to 2 while others estimate the proportion to be 2 to 1.<sup>13</sup> Of the eight cases of Xanthelasma observed by us all were females.

Heredity seems to play a considerable role in the predisposition to this condition, particularly in the generalized form. Of the six cases reported by Church in a single family five were females, while Fagge<sup>14</sup> reports an instance in which the malady made itself manifest in four generations and Wilks<sup>15</sup> reports a case in which the mother and daughter were affected. The palpebral form apparently never occurs under the age of puberty, and Hutchinson<sup>13</sup> is responsible for the statement that "it is probable that patients who develop Xanthoma unusually early in life are experiencing prematurely other forms of senile change." One of our cases gives a history of her mother and sister having been afflicted with Xanthelasma.

The growth of the patches tends to slowly but steadily progress and requires several years for its complete development, and Sabraud,<sup>16</sup> Pye-Smith,<sup>4</sup> Pollitzer,<sup>10</sup> Hutchinson<sup>13</sup> and most other authors agree that Xanthelasma, once established, never spontaneously disappears. Hutchinson<sup>13</sup> makes the following statement in the London Chirurgical Transactions of March, 1871, viz.: "If any eruption supposed to resemble Xanthelasma shows a definite tendency to spontaneously subside, the correctness of the diagnosis should be questioned." After searching all available literature we have been able to find the report of only one case where the patches on the eyelids were fully developed, in which they disappeared spontaneously. This case, reported by Legg,<sup>17</sup> was one of generalized Xanthoma in which the lesions disappeared without treatment. The patches are of little or no prognostic value as they evidence of past rather than approaching disturbance,<sup>13</sup> and may show themselves long after the predisposing cause has ceased to exist, and it is not improbable that the lesions result from derangement of the function of the skin of the eyelids.<sup>13</sup> Although the fatty substance of Xanthelasma undergoes no change, the cells neither secreting nor breaking down,<sup>19</sup> the skin glands are likely to be affected by recurring disturbances in the nutrition of the eyelids, such cases being embraced in Hutchinson's classification of Xanthelasma cysticum, in which the sebaceous glands are most often involved; the sudoriparous seldom.<sup>3</sup> In the sebaceous form the affected glands appear as globular, pea-sized cysts filled with very firm sebaceous matter and usually surmounted by a comedone. They seldom become larger than a pea and are never inflamed.

On examining a microscopical section of one of the patches the epidermis and the papillary layers of the cutis are found to be normal,<sup>11</sup> the chief changes appearing in the middle and lower layers of the cutis.<sup>7</sup> The deductions from the observations of Pavy,<sup>27</sup> Moxen,<sup>28</sup> Frank Smith,<sup>26</sup> Waldeyer,<sup>20</sup> Howse, Legg,<sup>29</sup> Kaposi,<sup>30</sup> Fagge<sup>14</sup> and Pye-Smith<sup>4,8</sup> confirm the opinion that Xanthelasma consists in a

chronic hyperplasia of the deeper layer of the cutis, in which the papillae, epidermis, and subcutaneous tissue are only secondarily involved. On section the Xanthelasma plaque is found to consist of almost parallel rows of cords separated by large lymph spaces,<sup>19</sup> and these cords are composed of opaque, poorly defined clumps which are very refractile and have a mulberry formed surface relief, and this appearance is almost characteristic, being found in only one other condition, i. e., leprosy.<sup>19</sup>

In addition to these cord-shaped formations there is a cell which is considered by some authors to be characteristic of Xanthoma. This is the so-called "Xanthoma cell" or "Xanthoma giant cell." It is not a true giant cell but consists of a cell with a sharply defined membrane, within which are from one to thirty nuclei. These nuclei are arranged in a circle around a cloudy center. Between the cell membrane and the nuclei ring is a wide, clear, protoplasmic zone filled with fat globules.<sup>22</sup> These large giant cells are very abundant and are regularly distributed from the surface of the skin downward, which fact differentiates them from the giant cells of tuberculosis or lues. Pollitzer<sup>22 10</sup> questions the existence of the so-called "giant cell" and advances the theory that the structure described is a degenerated muscle fiber, others consider the Xanthoma cell to be modified connective tissue cell, a fourth group of authors advance the theory that it is an endothelial cell, while a fifth group consider it to be a hypertrophic fat cell.

Weddeler<sup>23</sup> asserts that the fatty infiltration does not appear to have a destructive influence on the cells themselves, while other authors, notably Pollitzer<sup>22</sup> dispute this assertion. Pollitzer maintains that the muscle fibers are replaced by fat, and he demonstrates that the rows of fat cells found in this condition correspond to the distribution of the muscle fibers in the skin of the eyelids.<sup>22</sup>

In the two sections which Dr. Dixon has so kindly prepared for us the above-described features can be nicely seen. The epidermis and papillary layers of the cutis are normal, with the chief changes in the corium. The fat in one specimen is well stained and in this preparation giant cells can be seen in profusion.

Xanthelasma palpebrarum must be differentiated from milium, but the latter is white and if one be punctured the contents may readily be shelled out.<sup>11</sup> Xanthoma multiplex might be confused with Xanthoma-like lesions in urticaria pigmentosa, but if examination be made, other manifestations of urticaria can be discovered. It must also be borne in mind that Xanthoma multiplex occurs predominantly in adults.

Various forms of treatment have been advised for the cure of Xanthelasma and good results have been reported following the use of several methods. Bessner<sup>21</sup> reports a case in which good results were obtained from the use of phosphorous in oleii morrhuae, Stern<sup>25</sup> removed the patches from the eyelids with a 10% solution of hydrargyri bichloridi in collodium, and Saboraud<sup>16</sup> advises that the Xanthoma patches be treated with a fine galvano-cautery at intervals of 1 to 2 mm. He states that the

lesions disappear after three sittings at fortnightly intervals. Electrolysis is recommended by Pye-Smith,<sup>8</sup> and Stelwagon<sup>7</sup> recommends that a 25% salicylic acid plaster be continuously applied to the Xanthoma plaque for several days. He, however, prefers a more sure and safe method of effectively and completely removing the neoplasm, and that is excision. In one of our cases excision was performed with excellent cosmetic results and no recurrence has occurred to date.

1 Rayer, *Traite des Malad de la Peau*. Paris, 1835.

2 Crocker, *Textbook on Diseases of the Skin*.

3 "Clinical Lecture on the Cystic Form of Xanthelasma Palpebrarum." Jonathan Hutchinson, *British Medical Jour.*, Apr. 25, 1908.

4 "Xanthelasma (Vitiligoidea) of the Skin, Peritoneum and Mucous Membranes Accompanied by Jaundice." Pye-Smith, *London Pathological Society Transactions*, XXIV, 1872-1873.

5 Leube, *Virchow's Archives*, vol. CXVI, 1889, page 85.

6 Von Gaefe, *Guy's Hospital Reports*, vol. XXII, 1877, page 517.

7 Stelwagon, *Textbook on "Diseases of the Skin."*

8 Pye-Smith, *Guy's Hospital Reports*, vol. XXII, 1877, page 97.

9 Lehen and Kauss, *Virchow's Archives*, vol. CXVI, 1889, page 85.

10 Pollitzer, *New York Medical Jour.*, vol. LXX, page 73.

11 Pusey, *Text, "Principles and Practice of Dermatology."*

12 Kaposi, *Hebra's "Hautkrankheiten."*

13 "Xanthelasma Palpebrarum." Hutchinson, *London Chirurgical Transactions*, vol. LIV, page 172, March, 1871.

14 Pagge, *Pathological Transactions*, vol. XIX.

15 Wilks, *London Path. Soc. Transactions*, XXIX, page 446.

16 Saboraud, *"Topographical Dermatology,"* page 130.

17 Legg, *Lancet*, 1879, No. 2, page 415.

18 Ziemssen, *"Handbook on Diseases of the Skin,"* page 577.

19 Unna, *"Histopathology of the Skin."*

20 Waldeyer, *Virchow's Archives*, LII, 319.

21 Bessner, *Jour. de Med. et de Chir.*, April, 1886.

22 Pollitzer, *Jour. Cutaneous Diseases*, vol. XXIII, No. 12, page 663.

23 Ueber Generalisierte Xanthome, besonders Xanthom. on Tumours. *Richter-Monatshette fur Praktische Dermatol.* XXXVI, 1903, Champard.

24 Pincus and Prek, *Munchener Medizinische Wochenschrift*, 55-1-198.

25 Chauffard, *Semaine Medicale*, No. 21, vol. 30, 1910.

26 Smith (W. F.), *Jour. Cutan. Med.*, London, 1869-1870, III, 241.

27 Pavy, *Guy's Hosp. Reports*, London, 1866, 3-276-282.

28 Moxon (W.), *Tr. Path. Soc.*, London, 1872-3, XXIV, 129.

29 Legg, *Tr. Path. Soc.*, Lond., 1873-4, XXV, 259.

30 Kaposi, *Wien. med. Wochenschr.*, 1872, XXII, 169.

### Discussion.

Howard Morrow: There is very little to be said about this interesting and complete paper. A few remarks may be added so that one could get a clear idea of the subject by eliminating a few of the subdivisions. We have the general divisions of Xanthoma tuberosum or multiplex and Xanthelasma. The first must be subdivided into the form associated with diabetes and the variety not associated with diabetes—they resemble each other closely. The diabetic form comes on more acutely and disappears more rapidly. It is not advisable to subdivide Xanthelasma. As stated in the paper, Pollitzer of New York has done more work along this line than any other man, and he tells us that eyelid Xanthelasma is a fatty degeneration of the muscular fibers going into the skin. Then there is the tuberos form of Xanthoma, which is a connective tissue new growth with a certain amount of fatty degeneration. It is advisable to separate these two forms of Xanthoma because they are absolutely different clinically. In the tuberos form or the multiple nodular variety we have a condition that is very rare. It is usually found in young adults and has a tendency after a few months, or years, to clear up, particularly the diabetic form; it has a generalized distribution, is seldom found on the face and is usually most marked over the knees, elbows and



hips. Xanthelasma is limited to the face and is incurable.

D. Friedlander: There are only two points in this paper which I wish to emphasize, first, the small percentage of these cases shown by statistics and the relative frequency of the affection. This is due to the fact that patients rarely come to this clinic for the condition of their eyelids, not deeming it to be of sufficient severity to demand treatment. The second point concerns the etiology of this disease, the recent researches of Chauffard, Pincus and Pick clearly demonstrating the condition to be due to a true cholesterinemia, and consequently all treatment, outside of the removal of the deposits, must be of a prophylactic nature.

Harry E. Alderson: The gentleman who presented the subject and those who have discussed it have covered much of the ground, so that there is little left for me to say. Personally, I have recently removed some pretty good sized Xanthelasma lesions from the upper eyelid of one of my patients by electrolysis. The result was very satisfactory. The etiology and the pathology of this condition have been discussed, but the later work of Pollitzer has not been given sufficient notice. He has a most interesting and instructive article in the December number of the *Journal of Cutaneous Diseases*, in which he presents convincing reasons in support of his claim that Xanthelasma is a fatty degeneration of the fibers of the orbicularis palpebrarum muscle. He refers to the occurrence of the lesions as elongated plaques whose axes are parallel to the course of the orbicularis palpebrarum fibers, and demonstrates in a series of illustrations the different phases in the degeneration of these muscle fibrillae, terminating finally in localized plaques of fatty degeneration. I would like very much to hear Dr. Ophuls' explanation of the presence of the giant cells shown to-night in the specimen under the microscope.

Wm. Ophuls: I believe that the giant cells observed in these growths may be in the nature of foreign body giant cells. It is interesting in this regard that whenever there is disturbance in the fatty tissue, giant cells are apt to form. In inflammatory conditions in the mammary glands, giant cells are apt to form, because fat has decomposed, as the result of which there is formation of crystalline foreign bodies, fatty acids and cholesterol. In tumors in which there is much fat, such as those under discussion, I presume that giant cells may form in the same way.

Major P. M. Ashburn: Among several cases of acetone recently in our hospital, has been one presenting a peculiar yellow coloration of the skin. The skin of the palms and backs of the hands, the soles and backs of the feet, a butterfly patch on the cheek bones and nose and that of the lower forehead presented a pigmentation varying from pale yellow to the deep yellowish brown stain seen on the hands of many cigarette smokers. The patient has been in the hospital for several months, has continually passed large amounts of sugar, even on a carbohydrate free diet, and has always had acetone in his urine and on his breath. The pigmentation in question appeared a few months ago, but has lately been fading and has almost disappeared at the present time. That it might be related to Xanthelasma was suggested by the fact that this trouble does affect some diabetics, that one important element of it is an excessive amount of fat in the skin, and by the further fact that a diabetic who died in the hospital a few months ago had so much free fat in his blood that on standing it separated into two layers, cream and blood, bearing the relative proportions of 22 to 35. I therefore had this patient's blood examined for free fat, which was found in excess, though in nothing like the proportions of the other case. I should like the opinions of others as to the possible

relationship of the pigmentation in this case to Xanthelasma.

G. H. Mize: According to Crocker and Stellwagon the chief changes appear in the middle and lower layers of the corium and, in reply to the question as to whether there is a fatty change in the vessels, I would state that the only record of such condition that I could find were the cases of Leube, who reports Xanthomatous plaques on the valves of the heart and aorta, and Lehzen and Kauss where a similar condition affected the mitral valves and both coronary arteries. In reference to the work of Pollitzer, I deemed it sufficient to mention this since, although his theory sounds plausible and may be entirely correct, it is as yet unsubstantiated by other investigators.

## MEDICAL NOTES TAKEN IN SOUTH AMERICA.\*

By DOUGLASS W. MONTGOMERY, M. D., San Francisco.

While on our way to South America the captain of the steamer remarked that we would see, south of the equator, a world very much alive, and we did. The medical profession in Buenos Aires partakes of this activity. The mental attitude of the physicians of a community always resembles that of the general people, and an open mind, and hospitality toward criticism are characteristics of the Argentine. The Argentine medical men, therefore read and compare, and talk over their work, and they know what is occurring in their profession in the European centers, and in the United States. They do not sit in "the scorner's seat," that refuge for incompetents in all ages and countries. They write, and write well, and some cases of disease of the skin that I saw demonstrated before the Argentine Dermatological Society were well worked out both pathologically and clinically. In fact there is more written on medical subjects in the Argentine than in Spain itself.

In the Medical Department of the University a just amount of attention is given to diseases of the skin, which are, as they should be, separated from diseases of the genito-urinary system. Dr. Baldomero Sommer, who occupies the chair, takes the students twice a week. The day I was present the students first heard a lecture of half an hour on the treatment of leprosy, they then were taken into the ambulatory clinic, where they made diagnoses and formulated lines of treatment. The students were fine, intelligent looking fellows, and went about their work quietly and seriously. The school is coeducational, and there was one woman in the class. The only language spoken was Spanish, but all the text books were in French.

When in Mexico City and in Guadalajara some years ago, I ran across the same state of affairs as regards text books. Their only books in Spanish were Ramon y Cajal's *Histology*, and a treatise on obstetrics, yet the students heard lectures and recited their examinations in Spanish. The failure, however, to get such a large part of one's mental nutrition delivered in the mother tongue is a defect, and must impede originality in a thousand ways. Many deplore the flood of medical literature in our own country, but they might just as well

\* Read before the California Academy of Medicine, March 27, 1911.

deprecate ordinary communication by word of mouth, by telephone, and by telegraph. One thing is certain, that when men are interested in a subject they will communicate with one another about it, and the communications, in order to be alive and pulsating, must be made by the readiest means possible, that is, in the mother tongue. When men are not interested in a subject there is silence.

That there is not a good supply of medical books written in Spanish is owing probably in the first place to the circumstance that the Spaniard, through the similarities in the languages, can easily read French, in which there is always an immense output of first-class text books. Furthermore, printing in Spanish is expensive, because of the small number of readers in Spain, and in Spain's unlettered colonies. It must always be borne in mind that although the Argentine is energetic and progressive, and is the finest of Spain's children, yet it has only something over five millions of inhabitants. Many of these inhabitants are Italians and do not read Spanish at all, and many of them are Spanish immigrants, who, of course, are unlettered. In addition to all this the Argentine is an agricultural and grazing country, and therefore much of its population is rural and not inclined to read. A Spanish medical author would therefore be confronted with an immense initial expense, with little prospect of his book being widely sold.

The Medical School building in Buenos Aires belongs to the Republic, but the Medical Faculty itself is of the nature of a close corporation, and elects its own members at stated intervals.

While in Buenos Aires I had the pleasure of attending a meeting of the Sociedad Dermatologica de Argentina. The hour of meeting was unusual—nine o'clock in the morning—and it is doubtful if in our country men could be induced to turn out so early. The place of meeting was the San Roque Hospital, a most convenient arrangement as regards patients for demonstration.

A number of interesting cases were presented, such as one of psorospermose folliculaire vegetante, one of madura foot, and one of blastomycosis.

The patient with madura foot was the second case of the kind that had been in the hospital. He was a man about thirty years of age, and had acquired his disease in a country district. He had a dark complexion, thick, stiff, bristly hair, and looked like an Indian. The disease, that had existed two or three years, had begun on the left sole toward its outer edge. On the dorsum of the foot, in this situation, there were the mouths of several fistulae, discharging a glairy fluid. The skin of the affected region was reddened, but soft and very little infiltrated. The radiograph showed decided rarefaction of the outer metatarsal bones. Doctor N. V. Greco had made cultures of the actinomycotic fungus, and also demonstrated it under the microscope in smears from the fistulae.

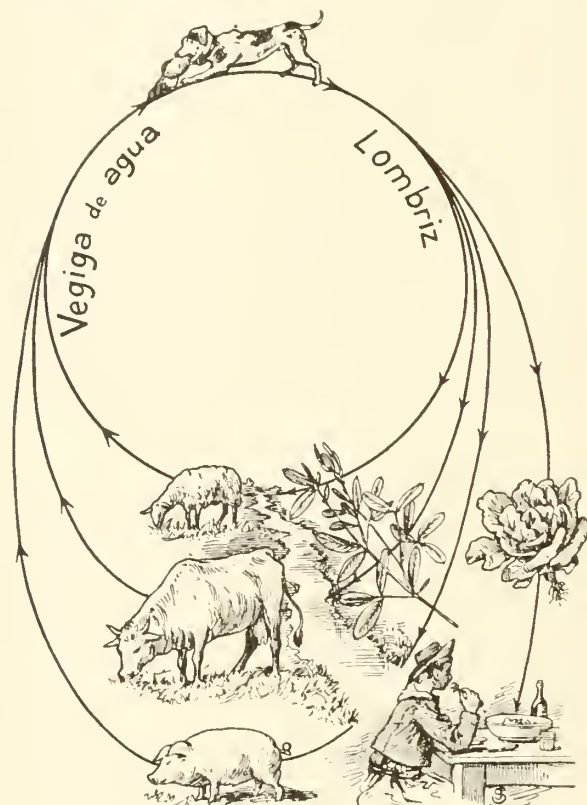
The members took particular pleasure in showing me the case of blastomycosis, as they were well acquainted with the work on this interesting disease by the late Drs. J. Nevins Hyde and Frank Montgomery.

I had also the gratification, at this meeting, of

becoming acquainted with Dr. Roberto Wernicke, in whose laboratory the late Doctor Posadas made a fine study of a disease closely resembling, if not identical with, the curious coccidioid infection that occurs in California, which in so many of its features resembles blastomycosis.

Dr. Alois Bachmann kindly gave me a number of slides from the Posadas case, which you can compare with slides from a case of granuloma coccidioides studied by Dr. Howard Morrow, and with blastomycosis furnished by Drs. Hyde and Ormsby, of Chicago.

We have not alone the shape, the size, and the general appearance of the micro-organisms in the Posadas specimens as they lie in the tissues, corresponding in every particular to those of granuloma coccidioides, but we have also the same mode of reproduction by endogenous sporulation, and as a contrast to blastomycosis the absence of budding. We have also in Posadas' case the very same histologic picture, forming, as Welch has said in regard to coccidioides, the closest mimicry of tuberculosis. I remember on first seeing Rixford's specimens, that I thought the disease was tuberculosis in which some adventitious micro-organism had accidentally been found.



A schematic illustration for use among the laity to show the complete evolution of the tapeworm that causes hydatid cysts.

Furthermore, in the Posadas case there was not alone infection of the skin and of the lymphatic ganglia, but also there was the development of intense generalized infection of the internal organs that lead to speedy death. Blastomycosis can also give rise to a generalized infection, but its occurrence does not seem to be nearly as frequent, nor its



course so swift as in the Posadas case, or in the California disease.

The ease by which the disease was inoculated into warm blooded animals also corresponds to what we know of coccidioides. Posadas experimented with white rats, guinea pigs, dogs, cats, monkeys, rabbits, hens, pigeons and parrots, and always with a positive result. In cold blooded animals, however, no inoculation ever took. In those animals in which the inoculation did take the peculiar parasite was always present in the lesions, and always gave rise to the same histologic picture, and to tumors identical with and evolving in the same manner as in the human being, so that, although the micro-organism itself was not isolated, yet there is no doubt the experimenter succeeded in transmitting the disease. All attempts Posadas made to cultivate the micro-organism outside the body failed, and possibly for the same reason that they failed at first in San Francisco. It will be remembered that in every culture tube there grew a fungus, and that this fungus was considered a fouling of the culture till Dr. Ashe injected some of this fungus into a guinea pig, and succeeded in transmitting the disease. It then transpired that the micro-organism when cultivated outside the body grows as a fungus.

Hydatid cysts that are so rarely found with us, are very frequent in the Argentine. Dr. D. J. Cranwell was able to report seven cases in one year from one hospital service, and another man I met, who did a good deal of surgery, said that he had had over one hundred cases in his practice. He remarked that any swelling in the neighborhood of the liver was instantly suspected to be caused by "the bladders."

The frequency of hydatid cysts is one of the consequences of the Argentine being a grazing country. As is well known, the affection is caused by a short tapeworm that lives in the intestines of the dog. The eggs of this tapeworm are scattered, with the dog's feces, on the grass and in the water courses, and so reach the intestinal canal of cattle. The embryos pierce the intestinal wall of the vegetable eater or man, and form cysts in various organs. The body of man is buried, and as far as any viable cysts he may have are concerned, their cycle of existence is terminated. It is also terminated in all the cooked meat eaten by man. But the dog, with his ravenous appetite, eats the raw flesh and the entrails of animals with hydatids, and gets, consequently, hydatid tapeworm, and the cycle is complete.

In 1908 the Argentine government appointed a commission to study the best means of controlling this disease. This commission issued a small leaflet for public distribution setting forth the means that should be taken for protection. The illustration in this leaflet showing the way the disease is conveyed from the dog to other animals and to man is very graphic. The tapeworms, the lombrizes, escape from the anal vent of the dog with the feces, and are scattered on alfalfa and in the water courses, and on lettuce and other green vegetables. From alfalfa and the water courses it reaches sheep, cows, and pigs, and from lettuce and other green uncooked

vegetables it reaches the gaucho or cowboy. The gaucho on dying, being buried, the disease as it exists in him dies out. The entrails of the sheep, cow and pig infected by "the bladders," the *vegigas de agua*, are, however, eaten by the dog, and the life cycle of the tapeworm is, as before mentioned, completed.

While in Petropolis, near Rio de Janeiro, I visited a slaughter house, where the offal was allowed to be eaten by dogs and turkey buzzards. Although the premises were clean and kept in good order, yet the presence of these unclean birds walking among the hanging meat was unappetizing, and the mode of disposing of the entrails of the slaughtered animals was of course wasteful and unsanitary.

The means of propagation of tapeworm being known, the control of the disease is easy. Dogs should be rigorously excluded from slaughter houses, and should be fed on cooked meat. If a dog is used to eating cooked meat, he will unwillingly eat it raw. These remedies are, however, not to the taste of the stockmen, who, frequently, just as with us, keep their slaughter houses in a slovenly condition. Instead of cleaning up they take the easier method of attacking the doctors, who expose the conditions, and say they are unpatriotic, and do harm to business and to the country.

In Buenos Aires it is quite ethical for doctors to advertise in the daily press. The better class put in a card with their specialty—the others dilate on their accomplishments. Their signs also often indicate what particular part of the temple of the soul they consider themselves best fitted to keep in order, as some for the urinary organs, others for the female genital apparatus, and still others for the abdominal cavity with all its squirming, slippery contents. Syphilis, the other venereal diseases, and diseases of the skin take up more than would seem to be their fair share of advertising space.

It is interesting to go from Rio de Janeiro, where advertising is very frequent, to Buenos Aires, where it seems to be slightly less frequent, and then on to Paris, where the physicians do not give the public even the convenience of a door plate. Afterwards I visited Germany, where the physicians have adopted the sensible practice of regulating the advertisements employed. There they may have two signs, no more, one of which may be on the door, the other on the house. These signs must not exceed a certain size. A physician, also, on beginning practice, or on returning from a journey, or after any prolonged absence, may announce himself in three issues of a newspaper.

As I learned of these German customs over our beer after a medical society meeting in Magdeburg, I related how, in my boyhood, a physician in Toronto used to make himself known. In addition to discreetly preserving his bachelorhood, and so keeping his lady patients talking, he had a number of dogs, one or two of which he managed to lose each week. Advertising for these lost dogs was quite as effective as a personal card, and exemplified also the ingeniousness of the human being in overcoming the annoying restrictions of etiquette. It is an old say-

ing that "God created man just and upright; but he has sought out many inventions."

Although the Parisian physician is so modest as not to have even a door plate, yet he has his own way of letting it be known he is not dead. There is probably no city in the world where the medical men do so much writing for the daily press as Paris, and "606" gave many of them an excellent opportunity.

In Rio, if ever, advertising is justifiable, as the city directory is a joke book. The names in it are arranged, not on the basis of the surname, but on that of the first or Christian name. Let us take as an example the name of H. C. Brogden, an American living in Rio de Janeiro. Mr. Brogden's name was not found under the B's, as it would be with us, but under the H's. His name among the Brazilians was Dom Henry, and Dom Henry went. The name John is a favorite, and one can see the hopelessness of consulting the directory of a large city for any one of the thousands of Johns. Rio people, therefore, do not consult directories. A banking house, for instance, did not give me the address of their custom house broker, but told me he lived near the fire station on a certain street. Under these conditions it is no wonder the doctors advertise, as otherwise they never could be found.

Whether in Rio newspaper advertising is a necessity or merely a custom there is no doubt about its popularity. In the issue of the *Journal do Commercio* of Saturday, June 18, 1910, I counted sixty-six advertisements of physicians under thirty-eight different headings, and if the expense of advertising bore any relationship to the subscription price of the newspaper it must have cost these gentlemen a pretty penny to keep themselves before the public. This subscription price is sixty milreis or about twenty dollars a year.

#### DEPARTMENT OF PATHOLOGY, UNIVERSITY OF CALIFORNIA.

The advent of Frederick P. Gay, formerly connected with the Harvard Medical School, as Professor of Pathology in the University of California, has been the cause of a number of innovations in the methods of teaching this subject. The department is now composed of Professor Gay, and his associates, Glanville Y. Rusk, A. B., M. D., Assistant Professor of Pathology; J. G. Fitz Gerald, M. B., Associate Professor of Bacteriology; Adelbert W. Lee, M. D., Instructor in Pathology; Ivan C. Hall, A. B., Assistant in Bacteriology.

The fact that bacteriology is now united with the department of pathology makes it possible greatly to concentrate the work, courses being given in a single semester, in the second half year. It is believed that by this method several advantages for the student are gained; he works intensively in the natural history of disease, and according to this scheme of instruction first takes up the consideration of general processes and later, studies each disease

in turn from the standpoint of its causation, progress and effect: thus, for example, if his forenoons are devoted to the microscopic study of cell degeneration, his afternoons will be given over to the general methods of the cultivation of bacteria, and the preparation of culture media. In connection with inflammation, studied as a process in the tissues, the pyogenic organisms which produce inflammation are studied bacteriologically, and, at the same time, the reaction in the animal body as regards phagocytosis, and the normal destruction of bacteria by blood serum. He then proceeds to take up the individual diseases. The group of micro-organisms which produce dysentery and typhoid fever, for example, he studies culturally, and on the same days the reactions of the body to infections with these organisms in the form of bacteriolysins, immune opsonins and agglutinins, the methods of diagnosis by means of agglutination and alexin fixation, vaccination in dysentery and typhoid, and the progress which has been made towards a serum therapy against these diseases. And finally, the gross and microscopical lesions characteristic of each disease are studied.

It has proved possible to work out this scheme in rather full detail, and the results are most satisfactory from the standpoint of instruction, and certainly logically to be recommended. There are given to instruction four whole days a week, eight hours per day, extending through the second semester of about seventeen weeks, which gives a total amount in hours equivalent to the amount that is given to the subjects of bacteriology and pathology in any first-class school. The relative amount of time allotted is about as follows:—one-quarter to Bacteriology and Protozoology; one-quarter to Infection and Immunity, and one-half to Morbid Anatomy and Histopathology. The relative time occupied is by no means fixed, but very flexible as occasion demands.

Beginning with next year, the systematic work in Bacteriology in the University, apart from such subjects as Dairy Bacteriology and Bacteriology of the Soil will, also, be given in connection with this department, which henceforth will be denominated as the Department of Pathology and Bacteriology: this means the giving of an Undergraduate Course in General Bacteriology, open to students in the various colleges, extending through the first semester, three afternoons a week, with opportunity for taking advanced work along special lines in either semester. Dr. J. G. Fitz Gerald, of the University of Toronto, has been appointed by the Board of Regents as Associate Professor of Bacteriology beginning with next year, and he will receive such assistance in the way of teaching as shall be necessary.

All members of the department are given ample opportunity and encouraged to investigate problems which their own inclination suggests. Although present lines of productive investigation lie largely in the functional field of body reaction during the course of disease and the problems of pure Bacteriology and Histopathology may be said to have been largely worked out, at least, in important lines, at the same time the general scope of Pathology is not regarded in a restricted manner from the point



of research any more than from the point of teaching. Bacteriology and Morbid Anatomy are obviously those subjects which can be most successfully taught to students and which are most necessary for them owing to the fact that they have been systematically investigated and hence are most available as an introduction to clinical medicine. The problems dealing with the functions in the body, or, better the vitiated functions of the body in disease, are by no means so well known, and therefore particularly demand investigation. Owing largely to individual training and predilection, the aspect of functional pathology, which is dealt with most in this department, lies in the field of Immunology, although it is obvious that the chemical metabolic changes would serve as an equally fruitful field of investigation. There is not as yet in the department a chemical pathologist, although such an individual is strongly desired. The Physiology of disease, then, is the subject least known, and towards this aspect productive work should be directed.

Concerning the research work Professor Gay says:

"We are investigating problems connected directly with immunology, and also are attempting to investigate the tissue changes which lie back of the reactions in infected animals: in other words, we are making certain investigations of a rather ambitious nature in an attempt to get certain points of contact between structure and function. The possibility of such correlation was impressed on me as a result of my work on anaphylaxis. Dr. Rusk, whose training has been largely in histopathology and morbid anatomy, is investigating certain individual cases of human disease of pronounced interest, from this standpoint, but in general the tendency both of his work and my own, lies in the investigation of general processes experimentally produced rather than in the accumulation of specific instances of disease; in other words, our work when it becomes purely histological, lies along experimental lines instead of depending on cases which come to hand. There seems to me no reason why the logical method of investigating the nature of histological changes should not lie along experimental lines rather than be dependent on the incomplete data that are furnished by casuistics. As regards courses planned for next year; in addition to the general course in undergraduate bacteriology, and the medical courses here outlined, we offer opportunities for research to graduates and undergraduates in the form of two courses, one on Problems of Infection and Immunity, offered by myself, and another in Neuropathology offered by Dr. Rusk, who has had extensive training in this important phase of Morbid Anatomy."

#### A CASE OF CORTICAL EPILEPSY.

By J. L. WHITE, M. D., and F. F. GUNDRUM, M. D.,  
Sacramento.

Patient, C. M., aged 42, came to the hospital complaining of "jerking in the left arm, followed by fainting spells." The family history was negative for any nervous diseases. The past history was somewhat as follows: Patient had always been a very active, strong man. He had the usual diseases

of childhood, and in addition, malaria, several times. Denied lues; gave no history of secondaries. Has had no pneumonia, typhoid, or rheumatism. At the age of 18, patient was thrown from a wagon to the ground, striking upon the left side. He was unconscious for several hours, but is unable to say whether or not there was bleeding from ear or nose. After recovering consciousness, patient was very much disabled for about a year, "unable to use the whole left side." He thinks the disability was due to stiffness and pain, rather than to actual palsy. He "recovered fully" in about a year. Since that time up to two and a half years ago, patient has enjoyed excellent health; has had no trouble with the left side at all. Four years after the accident mentioned above, patient was struck over the right mastoid process with a club, did not lose consciousness, and considers it a very slight injury. Otherwise, past history was quite negative. P. I. began suddenly two and a half years ago. Patient was at work on farm when the left hand began to twitch; the patient felt a darting pain in the left hand; the fingers became flexed, the arm flexed over the chest, and patient lost consciousness for about three-quarters of an hour. Since that time there have been similar attacks at irregular intervals, although they have not always been so severe. Occasionally, by sitting down and remaining very quiet when the arm begins to feel peculiar, patient is able to avoid unconsciousness. Not infrequently he has suffered considerable injury from falling.

P. Ex. Well-nourished adult; rational; able to make any directed voluntary movements rapidly and accurately. The patient stands well with eyes closed; walks without any noticeable difficulty. There is nothing unusual about the ears, throat, chest, or abdomen, except a soft systolic murmur heard over the base of the heart. Pulse is 80, good volume and tension. Genito-urinary system normal, urine negative for albumen and sugar. Nervous system: The eye muscles show no abnormality to motion. Pupils are equal, moderately dilated, and react to light and accommodation. All the muscles supplied by the cranial nerves act normally to voluntary stimuli. There is no special weakness to be made out in the left arm or leg. The deep reflexes are slightly hyper-active, but about the same on the two sides. Patient's cutaneous sensibilities apparently normal to touch, pain and temperature. There is fairly well marked astereognosis of the left hand. On being questioned about this, patient thinks it has existed ever since his accident twenty-four years ago.

Operation: (J. L. W.) under ether anesthesia. A racquet shaped flap, base below, was elevated over the right Rolandic region. No deformity of the internal table was noted. The dura was very thick and opaque over the whole exposed region. There was a very markedly thickened band of dura, 1 cm. wide, 4 cm. long, and 4 mm. thick, which ran horizontally forward just above the superior temporal convolution. A portion of this band 2 cm. long was excised for further examination and a racquet shaped flap of dura was raised exposing the Rolandic region and superior temporal convolution. The pia-arachnoid showed increase in thickness and there was beneath it a space 6 mm. to 7 mm. in depth separating it from the surface of the brain. The space was filled with rather dark clear fluid and was crossed by numerous adhesions, forming partitions so that the area resembled a collection of small cysts. There was no bulging, or protrusion, of the cortex, which was yellowish gray in color. The gyri seemed flattened and the consistency of the brain to touch seemed considerably denser than usual. This area of density extended upward about 2 cm. above the sylvian fissure and down to the lower extremity of the wound, i. e., about to the second temporal convolution. The whole cortical area which showed gross change, then, was

approximately 6x5 cm. in extent and overlapped the centers for the left face and arm as well as the anterior end of the temporal lobe. A small portion of cortex was removed for microscopical examination, the fluid was evacuated from all the small cyst-like collections, and the wound was closed in layers. Throughout the operation bleeding from the diploë was extremely active and troublesome. In the absence of bone-wax it was necessary to leave several pledgets of cotton in the wound to control hemorrhage. The center of the wound was reopened on the 4th day and the cotton was removed; healing per primam throughout. The patient had one slight convulsion on the day following the operation with delirium and somnolence on the fourth day (no edema of discs), recovery otherwise not remarkable. There is at present no palsy of any muscle or the extremity and the reflexes are active, the astereognosis remains unchanged. There have been no further seizures.

On examination of the fragments removed, it was found that the band of dura removed was made up of thick strands of closely packed white fibrous tissue. The portion of cortex excised showed a practical absence of the normal cortical pyramidal cells and a considerable increase in glia elements—more especially the fibers. There were a few lymphocytes scattered through the specimen with a slight amount of old blood coloring matter. Dr. E. C. Dickson, at Lane Hospital, who kindly looked over a section for us, decided: "The appearance is rather that of old scar formation. There does not seem to be evidence of malignancy." The very considerable area involved, the late appearance of epileptiform seizures, and the very few discoverable physical signs, made the case especially interesting to us. The relief (for several months at least) from convulsions following removal of a thick fibrous dural band and the emptying of cyst-like subpial collections of fluid made it seem likely to us that the mechanical pressure may have been the causal agent in setting the epileptiform seizure in motion.

#### PROCEEDINGS OF THE SAN FRANCISCO COUNTY MEDICAL SOCIETY.

During the month of March the following meetings were held:

##### Section on Medicine, Tuesday, March 7th, 1911.

1—Sleeping Sickness and the Trypanosomes (with microscopical slides). Chas. A. Kofoed, Professor of Zoology, University of Calif. Discussed by Drs. McCoy, Wellman and Kofoed.

2—Parasites Affecting Man Observed in California (with lantern slides). Creighton Wellman. Discussed by Drs. Kofoed, McCoy, Alvarez and Wellman.

##### General Meeting, Tuesday, March 14th, 1911.

1—Discussion on Resolutions proposed by Committee on Contract Practice.

2—Aortic Regurgitation. Wm. Watt Kerr.

3—Two Cases of Intracranial Tumor cured by Operation. Leo Newmark, H. B. A. Kugler, Harry M. Sherman. Discussed by Drs. McClenahan, Stillman, Rosenstirn, Castle, Newmark, Sherman.

##### Section on Surgery, Tuesday, March 21st, 1911.

1—Rectal Surgery under Spinal Anesthesia. B. F. Alden. Discussed by Drs. Newmark, Barbat, Krotoszyner, Zobel, Morton, Tait, Alden.

2—Rectal Surgery under Local Anesthesia. A. J. Zobel. Discussed by Dr. Newman.

##### Eye, Ear, Nose and Throat Section, Tuesday, March 28th, 1911.

1—Demonstration of Cases. Harrington B. Graham.

2—Demonstration of Case. Cullen F. Welty.

3—"606" in Eye Disease. M. W. Frederick. Discussed by Drs. Barkan, Pischel, Bine, Frederick.

#### General Section, March 14th, 1911.

Dr. Harry M. Sherman exhibited a patient upon whom he had operated for endothelioma of the dura mater. The tumor removed was 6x8x4 cm., most of it being within the cavity of the skull, where it had made a large depression in the left frontal and prefrontal lobes. The only subjective symptoms of its presence were anosmia and some irascibility. After the removal of the tumor the brain gradually returned to its normal shape and size. A silver plate, oval in shape, about 4x6 cm. in size, was then put into the skull to fill the gap in the bone and restore the convexity of the frontal region.

#### Local Anesthesia in Rectal Surgery.

By ALFRED J. ZOBEL, M. D.

Local anesthesia is mainly of value in minor surgery. It is the general consensus of opinion among rectal surgeons that nearly 80% of all the affections of the ano-rectal region are conditions that require only a minor surgical procedure for their relief and cure; and that the great majority of these can be done under local anesthesia.

Many of these ano-rectal troubles give rise to pain, suffering, and discomfort out of all proportion to the extent or seriousness of the pathologic lesions present. It is therefore assumed that, if a simple operative procedure under a local anesthetic can affect as good, safe and speedy a cure as can be secured under a general anesthetic, patients need not be subjected to those dangers that always lurk in the latter, even when administered by a most experienced anesthesiologist; nor need they be caused the post-anesthetic discomforts and sufferings so often attendant thereon. Besides, in these modern days, any operative procedure that requires a general anesthetic means confinement, for a longer or shorter period in a hospital, with not only additional expense, but the dread attached thereto by the laity. As a result there flourishes in our midst the quack, the itinerant, and the "no knife" specialist.

It must not be misconstrued from this that general anesthesia is unnecessary in rectal surgery. Far from it. There are numerous important conditions where it is the only method of anesthesia that can be employed. It should be the anesthetic of choice in operations on complex or horseshoe fistulae; on recto-vaginal, recto-urethral or recto-vesical fistulae; or even in a simple fistula when one is not absolutely sure that it is straight and uncomplicated, and when it is of extended length.

It should be used for the removal of neoplasms requiring extensive dissection; in resections and excisions; and in operations on strictures or malformations above the anal canal.

It must be employed in operations high up in the rectum; where there is a small contracted anus; in cases of extensive prolapse; and where there is any doubt of the diagnosis, thereby making it uncertain how much of an operation might be necessary.

While incipient and small ischio-rectal abscesses may be opened under local anesthesia, a resort to general anesthesia is preferable if the abscess has attained any size; for it may be necessary to do more than was anticipated, before the source of the trouble is located.

The aforesaid conditions are the 20% of those that come to the rectal surgeon for relief, and these are emphasized as requiring general anesthesia.

In the other 80% are those conditions which can be easily, safely, and quickly operated on under a local anesthesia. This group includes internal hemorrhoids, fissures, and small simple straight fistulae, uncomplicated by other serious disease; external thrombotic hemorrhoids; cutaneous hemorrhoids; hypertrophied papillae; small anal strictures; inflamed crypts of Morgagni; polypi; ulcers; moderate degrees of prolapse; and marginal abscesses. These are the lesions we meet with most frequently; and these are the ones that only require a minor surgical procedure under a local anesthetic skillfully



and painlessly administered to turn a patient, alarmed at the thoughts of being made unconscious, into an enthusiastic admirer of the marvels of one of the greatest gifts to modern surgery.

To Gant we are indebted for the impetus given to the use of local anesthesia in rectal surgery. He employed very weak solutions of drugs with anesthetic properties, and first made use of plain sterile water. His success gave rise to many followers throughout the country.

In 1905 Tuttle devised a method for anesthetizing the sphincters of the anus by means of solutions locally introduced. By following his technic the sphincters can be painlessly stretched sufficiently to do any operation that can be performed under local anesthesia. It is a procedure requiring some little skill, besides a knowledge of the distribution of the lesser sphincter nerve of Morestin, but is invaluable to one practicing rectal surgery.

The anesthetic solution is a matter of individual choice. The writer has a preference for novocain, and uses it in the strength of  $\frac{1}{2}$  to 1% for anesthetizing the sphincters and the skin; and in a strength of 1-10 of 1% for infiltrating tissues. To this is added adrenalin in proper proportions. My preference for novocain comes through the studies of Le Brocq, who, after a careful investigation of the local anesthetics recommended as substitutes for cocaine, such as alypin, nirvanin, stovain, tropo-cocain, novocain, and betacucaine lactate, came to the conclusion that novocain is most satisfactory for general use. Its anesthetic action is equal to cocaine and its toxicity and general destructive power on the tissues is very much less. It causes no swelling and no hyperemia. The parts remain normal after injection. It is compatible with adrenalin; is freely soluble in water; can be sterilized and undergo no change.

Some operators demand a specially constructed syringe for their work, but I have found any hypodermic syringe that can be well sterilized capable of doing anything claimed for the special syringes. The finer the needle; the stronger and sharper it is; the less pain will it give and the better work will it do.

Under local anesthesia the operation can proceed with the patient in any desired position. Very often such positions as the knee-chest, knee-elbow, or the Mathews-Hanes (where the patient is completely inverted) will be found particularly convenient. These cannot be used when a general anesthetic is employed.

For the radical removal of internal hemorrhoids under local anesthesia the ligature operation, using fine linen thread, is the operation of choice. Since the greater number of hemorrhoids are usually found on the right side many prefer the patient in the semi-prone position. The writer has found that in this position the blood is apt to drain back into the rectal ampulla and give the impression of severe bleeding, which is not the case when the patient is in the dorsal lithotomy position. If the hemorrhoids cannot be readily prolapsed on account of the spasmodic action of the hypertrophied external sphincter muscle then we resort to Tuttle's method to dilate the muscle.

When local anesthesia is employed there is no danger to life when weak solutions are used; there is no danger to the heart, lungs, or kidneys, or to the cord as when spinal anesthesia is employed; it is easily and quickly administered; the danger of shock is lessened; it takes away the fear that the laity, and even those of our own profession, have of a general anesthetic; urinary disturbances are infrequent; it does not necessitate so long a detention from the patient's usual affairs; most of these operations, being minor ones, can be safely and effectively done in the office or house as well as in a hospital; the resisting power of the patient not having been lowered by a general anesthetic the healing process seems to be much more rapid and satisfactory; and, as Cooke puts it, "confinement is rendered a matter of expedience, rather than necessity."

Local anesthesia had best be used in individuals of

stable nervous organization. As Braun says, "Children and adults who behave like children, are not good subjects for local anesthesia."

The patient with a rectal affection that bothers him enough to seek relief by operative measures is generally an individual whose nerve force has been well drawn upon by the exactions of his trouble. It is very necessary to secure the confidence of the sufferer. When he has been told that there will be no pain outside of the primary prick of the needle the operator must keep his word.

There must be the utmost gentleness in manipulating these most sensitive parts. The technic of the operator must be perfect, and this will come only from long continued practice. The least said during the operation the better, and a well trained assistant who can understand by look as well as by word is a valuable asset.

Speed is a necessity, for the period of analgesia is limited; therefore the operator must know well beforehand just what he intends to do, and must do it quickly. This means that a correct diagnosis before operation is essential to the successful use of local anesthesia in rectal surgery.

**Discussion.** Alfred Newman, M. D.: I wish first of all to compliment Dr. Zobel upon his very excellent paper, in which he has covered the ground so thoroughly that it is hard to add much more to it. I would like to say that in some of the lesser affections found around the anus, such as thrombosed piles, subcutaneous abscess, etc., that I have been in the habit of using one or two drops of a strong solution of cocaine, 5 to 10%, and I find thereby that the action is much more prompt. The anesthesia is absolute and there is no edema to blur the field of operation. Of course the choice of patient is a very important matter; there are some patients whose nerves are so strong that you can do almost anything with them. I have seen patients in whom I could introduce a speculum and dilate the sphincter to its fullest extent, and again other patients who were so nervous that I could hardly touch them at all. We find that women are much better subjects for local anesthesia than men for the simple reason that with the finger in the vagina it is easy to evert the anal canal. I also want to say that in this work a good deal depends upon the skill of the operator; everybody has to learn, and unfortunately in the beginning we all make mistakes—to the great discomfort of our patients; so that it is really only after long practice and much experience that one becomes truly expert in the administration of local anesthesia in rectal surgery.

#### "606" and Eye Diseases.

By M. W. FREDRICK, San Francisco.

To destroy the parasite without destroying the host is a problem that has often been presented to us in medicine, and never in a more concrete form than it has since the introduction of the organic arsenic compounds for the treatment of diseases due to protozoa and spirilla. The great desire to rid the world to a large extent, if not entirely, of the dreaded scourge of syphilis, and the alluring promises made that one or two injections of organic arsenic would eradicate the disease in the individual even when the other well-known specific had failed, has aroused a demonstration of interest which has only been equalled by the enthusiasm shown when Koch gave us his tuberculin. That we are doomed to partial disappointment in this matter seems now beyond doubt, but we should, and are now trying to, get the greatest possible good from what is, without doubt, an immense addition to our therapeutic armamentarium.

By destroying the host I mean not so much destroying him in his entirety, as destroying him in part. If this part is an important part, such as the organ of sight or hearing, the question arises whether the patient would not rather "bear the ill he has than fly to others he knows not of," or fall back on those

drugs whose limitations and possibilities, whose dosage, toxicity, etc., have been so well determined that they can be used by every medical practitioner without fear of doing the patient more harm than good. In the words of Ehrlich, however, "the hope, that with the ideal of modern therapy, i. e., that with perfectly innocuous substances, healing processes may be induced in the body, seems to me to be an impossibility. We shall always have to deal with a certain amount of danger from toxicity, but this danger must never be so great as to outweigh the damage which might result from the disease. Compare this with the benefits and the dangers arising from the use of anesthetics."

After trying a number of synthetic arsenic compounds Ehrlich now offers us salvarsan as the drug which will effect the greatest good with the least harm. Its predecessors enjoyed short favor, and were then abandoned chiefly on account of the harm resulting to the special senses, especially to the eye. Each one, as it appeared on the therapeutic firmament, was heralded as a speedy and harmless destroyer of protozoa and spirilla. Of 1633 patients treated by Koeh for sleeping sickness with atoxyl, 22, or 1.5% became blind permanently; and of all the patients treated for this disease with atoxyl a total of 3% lost their sight. Retinal hemorrhages, analogous to the hemorrhages observed in the renal tissue after atoxyl injections, were frequently seen. Fehr tells us that the optic atrophy resulting from large or repeated doses of atoxyl may pass on to total blindness, or that recovery may ensue if the drug is discontinued in time. The visual disturbances may come on suddenly or gradually, and my, or may not be preceded by symptoms of general intoxication. Concentric contraction of the field of vision, especially marked on the nasal side, without central scotoma, early pallor of the nervehead, narrowing of the retinal arteries, are the findings which he emphasizes. The contraction of the fields with well-preserved central vision give the patient a feeling of impaired sight which he cannot explain to himself, but which gives him great annoyance.

By injecting small amounts of atoxyl into the vitreous Igersheimer produced local necrosis, which showed itself in nuclear changes in the ganglion cells of the retina, and intense blackening of the nerve sheaths of the optic nerve (the Marchi reaction of Schreiber). This Marchi reaction could be traced through the peripheral nerves, and traces of it could be found even in brain and cord. It is in cases that have been under the influence of arsenic for a long time that these changes are found, which are, therefore, ascribable to the action of inorganic arsenic.

Birch-Hirschfeld and Koester have collected the findings in 46 cases of blindness following the use of atoxyl, examined some of them microscopically, and done considerable experimental work. They found that atoxyl atrophy has a marked clinical and anatomical picture, well marked in its type. Once begun the degenerative processes continue to complete atrophy. The process seems to begin well back in the nerve, as the ophthalmoscopic findings may remain negative for a long time, even after a considerable loss of vision is present. Months may elapse before we get the picture of gray atrophy with constriction of the vessels. Where a functional test was still possible the field showed its strongest contraction on the nasal side. An island of central vision maintained itself for a long time in some cases. Unlike the ordinary cases of atrophy the color sense remained for a long time, and the pupillary reaction was present even after total amaurosis had been established. This proves the persistence of the papillomacular bundle, which is about the first to be attacked in the other forms of toxic amblyopia, and the last to be attacked by atoxyl. All of which goes to show that atoxyl attacks the optic nerve in a different way from the other noxa which cause optic atrophy, and that we should not be deterred by the fear that atoxyl and tabs working together would surely cause a complete atrophy from using the

arsenical compounds. If we accept that any injurious effect which salvarsan may be shown to have on the optic will be similar to that caused by atoxyl, we should therefore use salvarsan without hesitation in beginning optic atrophies which are the result of entirely different noxa. As a matter of fact no such cases of nerve lesion from the use of salvarsan have yet been reported, and if they are to present themselves they should be present by this time, as 7 months was the longest time which they took to appear after the use of atoxyl. That they would not have passed unnoticed or unreported we may assume from the insistence of Ehrlich upon making all eye findings and eye lesions a matter of particular attention.

The pathological findings of Morax were similar to the foregoing. Keys experimenting on dogs with atoxyl, found initial lesions in the retina, with secondary involvement of the nerve. He divided his animals into two classes: the acute cases, which died within ten days, in whom he found atrophy of the nerve fibres and septal thickening, diminution of the number of ganglion cells, the remaining ones being swollen and in various stages of disintegration, the arteries narrowed and at times obliterated; the chronic cases, or dogs that lived beyond ten days, who showed pupillary reaction up to the sixth week, and in whom the microscopical changes were more advanced than in the acute cases, although the ophthalmoscopic changes were limited to pallor of the disc.

The many unfavorable reports on atoxyl were sufficient to condemn it as false to its name. Arsacetin was then introduced with assurances from Ehrlich, Neisser, and others, that affections of the optic nerve were not to be feared after its use, but it, too, proved a dismal failure. Judin reported total blindness after four injections; Ruete after six; Weinstein after two; Hammes after eight, and Iversen after a small number. The prevailing lesion was retrobulbar neuritis, with consecutive atrophy of the nerve. Eckard reports three cases of blindness in 134 patients treated for sleeping sickness with arsacetin.

The same promises were made for soamin, a para-amino-phenylarsenate, containing 22.8% of arsenic. Clark found the vision affected after giving ten injections, and five months later, after five further injections had been given, the vision was reduced to seeing shadows on one eye, and 6-12 on the other. Clark also found that after injecting orsudan eight times the vision was reduced to counting fingers.

Thus one star after the other lost its splendor and was finally extinguished. Now a particularly bright new one has arisen, and we are to determine how long it will illuminate us with radiance. Dioxo-diamido-arseno-benzyl, "606," or, as it is conventionally called, salvarsan, is, as Ehrlich assures us, free from the injurious effects on the organ of sight which its predecessors exerted. 25,000 to 30,000 cases have been treated with salvarsan with but one case of damage to the optic nerve, and this case is open to discussion, of which later on. G. Lindsay Johnson, in the Ophthalmoscope for November, 1910, says: "I have made the most minute inquiries in the Berlin clinics, where the drug is in daily use, and have not heard of single case in which optic neuritis, or, indeed, any ocular trouble has resulted." Similar reports are made from many sides, such as from Wechselsmann, Schanz, Ritter, Sieskind, Spiethoff, and hosts of others. Ehrlich attributes this difference in behavior between the latest of the synthetic arsenic compounds and the former ones to the fact that in salvarsan the arsenic is an entirely different molecular combination than it is in the former preparations, the amido, or anilin, radical having been abandoned. The use of methyl alcohol has been discontinued in preparing the injections of salvarsan. When methyl alcohol was used transitory eye disturbances were noted in a number of cases. Thus Stuelp mentions sudden attacks of temporary blindness in a tabetic subject 50 hours after the injection, ptosis and loss of sight in one eye in another subject eight weeks



after the injection, and scotoma scintillans in other cases.

The continental journals, which teem with articles on this new remedy, bring us assurance from all sides that no untoward effect on the eye has been noticed from the use of salvarsan. The American journals do not, as yet, contain many articles on this subject, as we have had a scant six months in which to try salvarsan, but the eye subject will, without doubt, be a prominent feature in our future articles. I have injured of many of my local colleagues who have given injections of salvarsan whether they have seen or heard of any eye trouble resulting from its use, without hearing of a single case of damage. Nevertheless, most of those using the remedy have taken the precaution to have the eyes examined with special reference to the presence of a neuro-retinitis, or a beginning atrophy, of non-leucic nature. Wechselsmann says: "While damage to the optic nerve has never been observed from the use of salvarsan, still it is advisable to make a careful examination of the fundus in order not to overlook any already existing neuritis. Whereas, at first, all existing eye lesions were considered a contraindication for the injection, later on suspicious cases were also treated. In eight cases of well advanced atrophy, which were treated at the earnest desire of the patients, no increase of the atrophy was observed." It is a difficult matter to determine the presence of optic atrophy in its earliest stages, as the fundus appears normal, the contraction of the field of vision is so slight as to come within the limits of individual variations, the color sense still undisturbed, central vision normal, and scotomata absent both in the relative and positive forms.

Allow me, at this juncture, to quote a few lines from Edsall's article in Osler's System of Medicine on the subject of arsenic poisoning: "The nervous symptoms are, in general, of good prognosis; like all toxic paralyses, those due to arsenic are occasionally permanent or show little improvement if they have reached a severe grade, especially if treatment is long delayed. Most of the chemicals, like lead, that produce chronic disease if taken for a long time in small amounts, rarely cause lesions of prolonged or persistent course when only a single large dose or a few such doses have been taken. Amongst the first symptoms of arsenic poisoning are puffiness of the eyelids and congestion of the conjunctivae. In rare instances single cranial nerves have been affected, and there has resulted, for instance, aphonia from laryngeal paralysis, ptosis, and paralysis of other external eye muscles. Amaurosis occasionally occurs, and a cloudiness of the lens has been mentioned as a result of chronic arsenic poisoning. A few of these chemicals do, however, cause chronic evil effects as a consequence of acute poisoning, and of this group arsenic is a prominent member; arsenical neuritis not uncommonly results from a single large dose taken by accident, or in an attempt at suicide."

Uthoff, in the *Grafe-Saemisch Handbuch der Augenkrankheiten*, states that while temporary amaurosis has been observed after arsenical poisoning, atrophy of the optic nerve has never been observed, nor has any post-mortem finding of such atrophy been made. Nystagmus and dilatation of the pupils have been noted, but no undoubted case of ocular palsy. Compared with other nerve affections the participation of the eye in evil effects from arsenic poisoning has been slight. This was written in 1901, before the arsenic preparations began to flood the world, and would probably read differently if rewritten by that careful observer to-day.

Let us now take up the case mentioned by Finger in which optic atrophy is supposed to have occurred in a previously healthy eye. Ehrlich took pains to get the history of this case, which I give you here in a condensed form. The patient was a woman 22 years old, who had been under treatment for malignant syphilis for a long time. She had received thirty injections of arsacetin in one month, and during the course of the following year had gone

through four courses of enedol injections, receiving, in all 59 injections of the latter drug, which is a combination of mercury and methylarsenate. About three months later she was given 0.40 salvarsan in emulsion according to Wechselsmann's method. Three months after this she complained of her sight, and was found to have contraction of the visual fields, pupillary differences, and beginning atrophy of the nerve. The patient had been under the influence of arsenic for over a year, and the experience with atoxyl shows that the eye readily acquires an oversensitiveness, which Ehrlich explains by saying that the arsenoceptors of the retina have become more avid for arsenicals, an explanation which does not convey any meaning to me. In 1909 Ehrlich had already sent out a word of warning in this regard: "The history of the patient should be carefully taken to determine what kinds of treatment he has already been subjected to, as the history of atoxyl has shown that when it is followed by arsacetin the therapeutic effects are greatly diminished, while the danger to the organism is much increased. The normal law of distribution between parasite and host has been disturbed; the parasite takes up very little of the arsenic and is very little affected thereby, while the organs of the host store up the arsenic in large and dangerous quantities."

Hallopeau, who is an ardent advocate of Mouneyrat's hektin, reports four cases of eye injuries, which Ehrlich disposes of in the following fashion: Two of them, which were supposed to be products of Lassar's clinic, are alluded to as fables, which will not down, although Ehrlich has several times proved their fictitious character. In the third case the patient had a temporary attack of blindness lasting ten minutes, and the fourth case was one of tabes. This, then, leaves no undoubted case of optic atrophy due to the use of salvarsan, whether such will appear, owing to the fact that it takes longer for salvarsan to produce such an effect, or whether any have been overlooked no one can at present say. It is to be hoped that the newest of all of these arsenic compounds, the hyperideal, which is still less poisonous than salvarsan, will continue the good record enjoyed by salvarsan until now.

Now, having found out that salvarsan can do no harm, and that we have been acting like a badly frightened lot in regard to it, let us turn our attention for a moment to what good it has done in eye diseases. Stuelp has gotten together 420 cases of syphilis of the eye which were treated by salvarsan, and gives us the following statistics in regard to the outcome of the treatment:

A—Syphilis of the eyelids, 3 cases; cure in 100%.

B—Syphilis of the conjunctiva, 8 cases; cure in 63%.

C—Syphilis of the cornea, 95 cases; cure in 27%.

D—Syphilis of the sclera, 5 cases; cure in 80%.

E—Syphilis of the uveal tract, 85 cases; cure in 63%.

F—Syphilis of the retina and optic nerve, 76 cases; cure in 63%.

G—Syphilis of the muscles, 142 cases; cure in 33%.

H—Syphilis of the orbit and trifacial, 7 cases; cure in 100%.

This gives us an average of 66% of cures, which is 11% less than the percentage of cures in the cases of general syphilis collected by Plant. Stuelp explains that many of the uncured cases could not have been favorably influenced by any other known form of medication, and believes, on the other hand, that many of the authors are too optimistic and have hastened to report cases as cured which have afterwards shown relapses.

Marcus, of Stockholm, reports the cure of a case of abducens paresis of long standing, and of an old case of parenchymatous keratitis; an old facial paralysis and ptosis, and another case of facial paralysis with diminished hearing, which had previously

been treated with mercury and iodides, showed considerable improvement. Several cases of impaired speech showed improvement, but none of the psyche. He supposes that these good results are attributable to the resorption of old meningeal processes. One case of oculomotor paresis showed a relapse. Favento, of Triest, like most of the other reporters, found that parenchymatous keratitis was not influenced by salvarsan. Denig of New York, however, reports two cases in patients aged respectively nine and twelve years, with parenchymatous keratitis, in which the vision improved considerably; Stuelp had a good result in a man aged 26, and Riecke reports also favorably on a case of this kind. Most of the observers deny any improvement in vision, but most of them admit that there is a notable decrease in the photophobia.

Hirsch, of Prag, has given the history of three very interesting cases, which merit a somewhat lengthier mention. The first case presented a picture of tabetic atrophy of the optic nerve, but was probably a coincidence of tabes and luetic neuritis optica. There was a central scotoma in either eye, the discs were white, the fields concentrically contracted, the vessels normal in size. Although the central vision increased but little after the injection of salvarsan, the scotomata decreased rapidly, that of the right eye becoming cribriform. A noticeable phenomenon accompanying this change in the scotomata was the subjective sensation of seeing red, a color like that of the setting sun. This sensation lasted for eight days in the region of the scotomata, and is comparable to the phenomena of reaction, pain and inflammation which show in other localizations of syphilis after the injections of salvarsan. This would indicate a strong selective action on the part of salvarsan for the nerve fibres affected with lues, and is therefore much in favor of the use of this remedy when quick effects are sought in order to save some vital or important part.

In the second case there was a postneuritic atrophy in one eye, with marked sheathing of the vessels, in a patient who had numerous gummata and a general arterio-sclerosis. The sight was reduced to counting fingers indistinctly in the peripheral parts of the field. The fields were severely contracted, and their outline had to be determined with a square of five centimeters. This condition was observed during a whole year, during which time, although the patient was subjected to a vigorous treatment with antiluetic, there was no change whatsoever in the appearance of the fundus. He was then given an injection of 0.50 of salvarsan in the left gluteal muscle. A continuous improvement in all symptoms ensued. Seven weeks later the vision had risen to counting fingers at ten feet, the fields extended to forty degrees on all sides, with an absolute scotoma of five to ten degrees. The interesting part of this therapeutic success was the gradual change which was observed in the walls of the retinal vessels. Gradually the walls became thinner, and the blood column, which had been entirely hidden, reappeared. This did not take place continuously, but in spots which afterwards became confluent, giving the veins a knobby appearance until the changes became continuous throughout their course. The importance of actually witnessing this change in the blood vessels is easily understood when we reflect how many of the syphilitic changes, especially of the brain, are due to changes in the vessel walls.

The obverse of this picture is given by Nacht in a report of 13 cases treated in Froehlich's clinic. Of these 13 cases treated with salvarsan, 10 were absolute failures. All were old cases that had been treated with antiluetic; three were cases of severe parenchymatous keratitis, two of latent tabes, three of recent tabes, one of irido-cyclitis specifica, one of fresh vitreous opacities. One case of paresis of the accommodation had already improved greatly before the injection, so that much value cannot be attributed to the action of the drug. In one case of

sluggish pupillary reaction the action became somewhat more prompt, and might have possibly been still further improved by a second injection, but the patient refused this on account of the pain and cordial distress caused by the first injection. As most of the cases described by Nacht were instances of degeneration I do not see how he could have expected more; and instead of blaming the method of injection, which was that of Wechsellmann's neutral suspension, and indulging in the hope that intravenous injections might accomplish more, I think he should make a better selection of his cases.

Wechsellmann-Seeligsohn have given us in connection with this subject one of the best statistics in regard to the participation of the eye in syphilis, although his number of cases is only 250. The 12 cases of primary syphilis showed nothing. In 124 cases of secondary syphilis 16 showed the following changes: 6 cases of 4-6 months' standing showed differences in the pupil widths, with pupillary reaction still present; one case showed pupillary difference with rigid pupil of one side; 2 cases had bilateral pupil rigidity to light, with reaction to convergence; one case showed vascular changes in the fundus, the infection being two years old; one case of fresh choroiditis peripherica luetica; one case of central luetic choroiditis; one case of fresh iridocyclitis papulosa; 2 marked cases of marked central choroiditis myopica. Nineteen of the 77 cases of tertiary lues showed: in fifteen cases disturbances of the pupillary function, and with two ophthalmoplegia incompleta or totalis; in one case each changes in the retinal vessels, peripheral choroiditis, and remnants of old iritis; in one case beginning atrophy on one eye, complete on the other. These authors did not hesitate to use the remedy even in the suspicious cases, and in no case was there any further damage to the eye. Of course, they advise an examination of the fundus prior to the use of salvarsan, to note any existing lesion, so that any further development of that lesion may not be laid at the door of salvarsan. But in those cases which seem hopeless one should not hesitate to use the remedy. As Ehrlich says in speaking of several deaths occurring after injections, these were death candidates anyway, and their passing away should not occasion any scruples to the operator. The important thing to determine is the degree of intensity in the treatment of each individual. To use a certain dose in all cases is absurd, as there is not alone the power of resistance, but also the sensitiveness of the individual to be considered.

In conclusion, then, I think I may say that according to our present state of knowledge there is no reason for refusing the patient the possible benefit of salvarsan on account of the injuries caused by the former arsenic preparations. While there are yet many things to be determined, such as the largest dose which may be given with safety, the best method of introducing the drug into the system, the conditions which one may hope to better by the use of salvarsan, etc., this much seems certain that the eye condition is not a contraindication for the use of salvarsan. As a matter of self-defense it is advisable to determine the eye conditions prior to beginning the use of the drug in order to protect oneself against the post ergo propter reasoning of the patient. Even in those cases where degenerative changes in the optic nerve and its appendages have already appeared, one should not hesitate to use salvarsan as it is difficult to determine exactly how much luetic disturbance is still present, and in some cases, distinct improvement of a seemingly hopeless condition has been reported.

I want to mention, in passing, the benefit reported in a case of sympathetic ophthalmia by Siegrist.

I have not gone into the matter of relapses nor of ear involvement as this would have carried me beyond the scope of my paper.



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 Wechselmann—Berliner Klin. Woch., 1910, No. 47.

**Discussion.** A. Barkan: I have had no experience personally with this drug. Though the remedy is considered a harmless one to the eye as compared with its predecessors in the arsenical line, everyone agrees that it is of no benefit in parenchymatous corneitis,—in cases, then, which nearly always depend on congenital syphilis. Good effects are reported in cases of gummata of conjunctiva and primary lesions of the lids, but in these as in practically all cases of eye-syphilis the old time mercurial treatment, preferably by inunctions, has proved most useful and quick in its curative action. No affections of the eye offer in my experience better chances for cure than do the syphilitic ones. No wonder then that even the enthusiasts for 606 state that they would not care to give up mercurial treatment, etc., at the same time. Do not let us lose sight of that.

Kaspar Pischel: My personal experience with this drug is limited to two cases. One was a nose case in which it came to extensive necrosis in the ethmoidals and in the alveolar process in spite of vigorous treatment with potassium iodid and mercury in different forms. Later a periostitis of the manubrium set in which did not yield to treatment until an intravenous injection of salvarsan was given which caused immediate relief. The only eye case that I have treated with salvarsan was a patient who had been under treatment with mercury off and on for several years. When I saw her the sight of the left eye was reduced to seeing movement of hand. The sight of the right eye was less than 5-6. The fundus of both eyes showed extensive gray patches which were interspersed with fine pigment spots. One intravenous injection of salvarsan improved her general health visibly. She gained in weight and the sight in the right eye is slightly improving.

René Bine: I agree with Dr. Barkan, in that we can consider salvarsan a useful adjunct in the routine treatment of lues, and a most excellent and powerful remedy in those cases which are refractory to the usual medication, such as some cases of congenital lues and malignant syphilis. It has been long known that many of these lesions are amenable to the use of arsenical compounds, and atoxyl, arsacetin and the cacodylates have been often employed to advantage. I well remember a patient, who was demonstrated in this society, and who had been treated for some time at the University Hospital for a chancre of the lip. He did not get well under the customary anti-luetic measures, and went to the County Hospital, where a diagnosis of epithelioma was made, and the tumor mass excised. He next returned to the University Hospital, where, so far as I know he was permanently benefited by atoxyl injections. I think it is all very well to use salvarsan, but we should not demand too much of it. We should bear in mind that there are contraindications

to its use, and that Ehrlich has warned us against employing it in severe cardiac disease, and in advanced degenerative lesions of the nervous system. I know of one case of tabes which died a few days after salvarsan was administered, and one case of general paralysis which died seven days after the injection. Now that the drug has been widely heralded in the lay press, and that patients come, as I have had them come to me, asking for "a shot of 606," we should be particularly cautious, and by refusing to use it right and left, assist in a thorough trial of the drug and not bring its use into disrepute.

M. W. Fredrick: After the present wave of enthusiasm regarding salvarsan has subsided I think we shall find ourselves returning with even greater confidence than we had before to our old friends and standbys, mercury and potassium iodid. Salvarsan, is without doubt, a very valuable addition to our therapeutic store, and will be found to be of great use when we want a quick result, or when the patient is intolerant of mercury or iodid. I have not touched on the use of salvarsan in involvement of the mucous membranes but here its use has proved astonishingly prompt and efficacious. Neither have I spoken on the results of its use where the ear is affected, as this would have taken me far beyond the limits of the paper proposed.

## SOCIETY REPORTS

## RIVERSIDE COUNTY.

The regular monthly meeting of the Riverside County Medical Society was held Monday evening at the Mission Inn, the Society meeting as guests of Dr. W. B. Wells.

Following the dinner the Society adjourned to another part of the hotel where we listened to a paper on the subject of "Influenza" by Dr. H. R. Martin. Several members reported cases of unusual interest, all of which were freely discussed. The recent changes in Medical Legislation were reviewed and commented upon. Dr. Martin stated that he would not be able to attend the State Medical Meeting to be held at Santa Barbara this month and accordingly tendered his resignation as alternate. Dr. W. W. Roblee was nominated and duly elected to fill the vacancy.

Several members of the Society expressed their intention of attending this meeting.

GEO. E. TUCKER, Secretary.

## COOPER COLLEGE SCIENCE CLUB.

The Cooper College Science Club held its regular meeting on March 6, 1911. The scientific program was as follows:

1. Exhibition of Cases of Spinal Cord Lesions. H. C. McClenahan.
2. (a) Demonstration of Pathological Specimens of the Spinal Cord; (b) Some Remarks on the Physiology of the Cord. Milton B. Lennon.
3. Treatment of Intra Spinal Affections. Sol Hyman.

Refreshments were served at the close of the program.

## COOPER COLLEGE SCIENCE CLUB.

The Cooper College Science Club held its regular meeting on Monday evening, April 3rd. The following program was presented:

1. Presentation of Eye Cases. A. B. McKee. Discussed by Drs. Barkan, Taubles, Yerington, Oliver and McKee.
2. Phenolsulphonaphthalein as a Test of Kidney Function. R. L. Rigdon. Discussed by Drs. Mize, Gray and Rigdon.
3. "606" controlled by the Wassermann Reaction. H. R. Oliver. Discussed by Drs. Cooper, Schmitt, Rigdon, Alvarez, McClenahan, Smith and Oliver.

Drs. L. S. Schmitt and E. W. Parsons were elected to membership.

Refreshments were served at the end of the program.

REGARDING THE A. M. A. MEETING AT LOS ANGELES, JUNE 26, 30, 1911

For the information of members who may be receiving inquiries regarding hotel and hall headquarters and hotel rates, the following information is printed:

LIST OF HALLS AND SECTION MEETING PLACES.

Sections	Name of Halls	Location Halls	Name Hotel	Location Hotel
Medicine	Majestic Theater	7th and Broadway	Lankershim	7th and Broadway
Nervous	Walker (McKinley)	7th and Grand	Westminster	4th and Main
Children	Walker (Lincoln)	7th and Grand	Westminster	4th and Main
Dermatology	Blanchard (Broadway)	3rd and Broadway	Hollenbeck	2nd and Spring
Pathology	Blanchard (Symphony)	3rd and Hill	Hollenbeck	2nd and Spring
Surgery	Baptist Auditorium	5th and Olive	Alexandria	5th and Spring
Genito-Urinary	Blanchard (Music)	3rd and Hill	Hollenbeck	2nd and Spring
Women	Baptist Aud. (Beren)	5th and Olive	Hayward	6th and Spring
Preventive Medicine	Hamburger's	8th and Broadway	Alexandria	5th and Spring
Pharmacology	Walker (Garfield)	7th and Grand	Lankershim	7th and Broadway
Eye	Parish (2nd floor)	6th and Olive	Van Nuys	4th and Main
Ear	Parish (1st floor)	6th and Olive	Angelus	4th and Spring
Stomatology	Dental College	5th and Wall	King Edward	5th and Los A.
Commercial Exhibit	Hamburger (4th floor)	8th and Broadway		
President's Reception	Shrine Auditorium	655 W. Jefferson		
Smoker	Hamburger's (Roof)	8th and Broadway		
General Headquarters			Alexandria	5th and Spring

RATES AT LOS ANGELES HOTELS  
as Given to the  
LOS ANGELES CONVENTION LEAGUE  
(To Obtain During the A. M. A. Meeting)

Hotel	Plan	No. of Rooms	One Person		Two Persons	
			Without Bath	With Bath	Without Bath	With Bath
Alexandria	European	700	\$2.00 to \$3.00	\$3.00 to \$5.00	\$3.00 to \$4.00	\$4.00 to \$10.00
Angelus	"	300	1.50 to 3.00	2.50 to 5.00	2.50 to 4.00	4.00 to 10.00
Alvarado	American	100	2.50 up	4.50 up		5.00 to 7.00
Astoria	European	200	1.00	1.50	2.00	2.50
Broadway	"	200	1.00 to 2.00	1.50 to 2.50	1.50 to 3.00	2.50 to 4.00
Fremont	American	100	2.50 up	5.00 up	3.50 up	6.00 up
Hampden Arms	European	60	1.00	1.50 to 2.00	1.50	2.00 to 2.50
Hayward	"	300	1.50 up	2.00 up	2.00 up	3.00 up
Hollenbeck	"	500	1.00 up	1.50 up	2.00 up	3.00 up
Hollywood	American	200	2.00 up	4.00 up	2.50 up	6.00 up
Ingraham	"	100	2.50 up	4.00 up	3.50 up	5.00 up
King Edward	European	150	1.00 up	1.50 up	1.50 to 3.00	2.00 to 3.00
Lankershim	"	300	1.50 up	2.00 up	2.50 up	3.00 up
Leighton	American	125	3.00 up	3.50 up	5.00 up	6.00 to 10.00
Melrose	"	200	2.50	4.00	3.50	5.00
Munn	European	100	.75 to 1.00	1.00 to 1.50	.25	1.50 to 2.00
Nadeau	"	150	1.00 up	1.50 up	1.50 up	2.50 up
Natick	"	160	.75 up	1.00 up	2.00 up	3.00 up
Occidental	"	200	1.00 to 2.00	1.50 to 2.50	1.50 to 3.00	2.50 to 4.00
Rosslyn	"	285	.75 up	1.00 up	1.50 up	2.50 to 4.00
Snow	"	100	1.00 to 2.00	1.50 to 2.50	1.50 to 3.00	2.50 to 3.50
Trenton	"	165	1.50 up	2.00 up	2.00 up	2.50 up
U. S.	"	130	.50 to 1.00	1.00 to 1.50	1.50 up	2.00 up
Van Nuys	"	160	1.50 up	2.50 up	2.50 up	4.00 up
Victoria	"	100	1.00 up	1.50 up	2.00 up	2.50 up
Watson	"	100	1.00 up	1.50 up	1.50 up	2.00 up
Westminster	"	250	1.00 up	2.00 up	1.50 up	3.00 up
Woodward	American	125	2.00 up	3.50 up	2.50 up	4.00 up
Westmore	"	100	2.00 up	2.50 up	4.00 up	5.00 up
Yorkshire	European	100	1.00 up	1.50 up	1.50 up	2.00 up

Not Listed:

Four Hundred Family and Tourist Hotels and Apartments are Available

RESOLUTIONS ON CONTRACT PRACTICE  
ADOPTED BY THE SAN FRANCISCO  
COUNTY MEDICAL SOCIETY.

Whereas, The relations between hospitals and kindred associations and the medical profession have at the present time, come to be such that the skill, knowledge, judgment and experience of the physician is sold and bartered for by promoters and financiers of these establishments, the physician receiving little or nothing for his services; and

Whereas, These facts and conditions are opposed to the best interests of our profession; and

Whereas, The physician should receive his proper compensation from those able to pay, while willing at all times to give his services gratis to the poor;

Therefore, Be it resolved:

First—That the visiting staff of the hospitals shall not receive any compensation from the hospitals for the treatment of patients and only the resident staff thereof shall receive a salary.

Second—That patients entering a hospital, except those having their own physician, shall at once be assigned to the member of the hospital having charge of their particular class of case, and when so assigned, the matter of the physician's compensation shall be arranged entirely by said member of said staff and said patient without the intervention of the hospital.

Third—That a hospital may make rates, sign contracts with patients or others, for board, shelter, medicines and for general care and nursing; but in no case shall the hospital or any one in authority



therewith fix the physician's fee for services rendered to patients, or to others, nor interfere in the matter of compensation for medical or surgical services.

Fourth—That no hospital shall maintain an outside dispensary through the services of its resident staff or other salaried physicians; but that members of the salaried staff may attend outside calls, provided the matter of compensation is left to said member and the party accommodated. This shall not apply to such institutions of medical instruction recognized by the State Board of Medical Examiners, which, for educational purposes maintain a free dispensary for the needy poor.

Fifth—That immediately and again, at the next meeting of the San Francisco County Medical Society for the election of officers, a commission to be known as "The Hospital Commission," shall be appointed by the President of the San Francisco County Medical Society, that then and thereafter, said Hospital Commission shall be one of the regular standing commissions of the San Francisco County Medical Society, and that its term of office shall be the same as the other regular standing commissions of the San Francisco County Medical Society.

Sixth—That it shall be the duty of the Hospital Commission to keep informed as to the practice of the various hospitals touching the matter herein treated, and to classify said hospitals as Approved and Not Approved Hospitals. An Approved Hospital signifies a hospital which complies with the requirements of these resolutions in their entirety. A Hospital Not Approved is one which does not comply with these requirements, and therefore is not acceptable to the said Commission.

Seventh—Further, this Commission shall make a quarterly report to the State Medical Journal of California, to the San Francisco County Medical Society, and through the medium of the Society to every member of the profession in the City and County of San Francisco, calling attention to any deficiencies in any hospital which should be rectified before physicians be recommended to send patients to said hospital.

#### ANTI-MENINGITIS SERUM.

The Rockefeller Institute for Medical Research, in accordance with an announcement made last summer, now gives notice that it has discontinued the general distribution of anti-meningitis serum which it has undertaken without charge ever since the discovery of this remedy for cerebro-spinal meningitis. The effectiveness of this remedy in that form of meningitis which is caused by the *Diplococcus intracellularis* (Weichselbaum) having been generally accepted by medical authorities throughout the world, it has seemed appropriate that The Rockefeller Institute should devote to other lines of investigation the funds hitherto needed for the gratuitous distribution of the serum, handing over to the public health authorities of municipalities and States, and to commercial establishments the routine preparation of the serum for general use. The anti-meningitis serum will thus take its place with vaccine and diphtheria anti-toxin as an approved agency for the protection of public health.

The Board of Health of the City of New York is the first of American boards of health to undertake the regular production of anti-meningitis serum. It will provide for the free distribution of serum to all hospitals in the city, and, at the outset, to all physicians who apply for it. Later the gratuitous distribution other than to hospitals will be limited to those cases in which the physician certifies to the hardship that would be caused by a money charge. All others will be required to pay for the serum at a price covering its estimated cost. Pending the production of the serum in other localities, the New

York Board of Health will, as a matter of humanity, supply such urgent requests as may come to it from outside the State, but this provision will probably be necessary for only a short time. Within the City of New York the Board of Health will designate a few stations where serum will be kept on hand.

The statistics show that the death rate from cerebro-spinal meningitis has been reduced to less than a third of its former amount by the early use of anti-meningitis serum. That statistics may be reliable, however, it is important that all distributing agencies should provide means for controlling the bacteriological diagnosis. Otherwise the serum will undoubtedly be applied in some cases of meningitis due to causes which are not subject to the action of this serum, and not a few cases of epidemic meningitis will be deprived of the benefit of its use.

The serum is administered by being injected into the spinal canal by means of lumbar puncture, an operation which is also required to secure the fluid for bacteriological diagnosis; and several separate injections of the serum are required in treating a given case. The effective employment of the serum is likely, therefore, to be restricted on account of the experience and skill required in its administration and the high cost of the commercial product, unless the preparation, distribution, and, when necessary, administration, are undertaken by State and municipal authorities.

February 13, 1911.

THE ROCKEFELLER INSTITUTE FOR MEDICAL RESEARCH,

Jerome D. Greene, General Manager.

#### NATIONAL CONFEDERATION OF STATE MEDICAL EXAMINING AND LICENSING BOARDS.

The Twenty-first Annual Convention of the National Confederation of State Medical Examining and Licensing Boards was called to order at the Congress Hotel, Chicago, Ill., by the President, Dr. Joseph C. Guernsey. Dr. George W. Webster of Chicago, Chairman of the Committee on Arrangements, delivered a cordial address of welcome which was ably responded to by Dr. Lee H. Smith of Buffalo.

The President delivered the annual address, choosing for his subject "Medical Licensure." The report of the Secretary-Treasurer, Dr. George H. Matson, was read, audited and approved. The report of the Committee on Clinical Instruction by Dr. Henry Beates, Chairman, and that on *Materia Medica* by Dr. Murray Galt Motter, were read, referred for publication and the committees continued. The report of the committee on Mr. Flexner's paper, published in the proceedings for 1910, was read by Dr. N. P. Colwell. After an extended discussion the report was adopted as read and the committee discharged.

The Symposium on "State Control of Medical Colleges" was discussed from the viewpoints of State, Law, the Medical Colleges, State Medical Examining and Licensing Boards and the Medical Profession. From the viewpoint of the State, Charles William Dabney, Ph. D., L. L. D., President of the University of Cincinnati, read a paper in which he contended that the State could control and conduct medical colleges more efficiently than corporations and private individuals. From the same viewpoint Mr. Abraham Flexner of the Carnegie Foundation for the Advancement of Teaching, New York City, read a paper on "The Duty of the State in the Control of Medical Colleges," advocating this system. From the viewpoint of the Law, Hon. Charles Alling, Jr., Chicago, read a paper giving his opinion that the courts would uphold the system. Dr. Arthur Dean Bevan, Chicago, discussed the question from the viewpoint of the Medical Colleges, setting forth

the advantages of State control, (a) as regards uniformity of requirements and methods, (b) as giving adequate financial support. From the same viewpoint F. C. Waite, A. M., Ph. D., Cleveland, forcefully and hurriedly pointed out the evils inherent under the present system and expressed the opinion that the spirit of competition and commercialism would be eradicated if the state controlled the medical colleges. Dr. Frank Winders, Columbus, O., read a paper in which he contended that with aid rendered by the state, medical education would become more efficient by having all teachers receive a compensation commensurate with their labor, and by having a larger number devote their entire time to teaching than now obtains. From the viewpoint of the State Boards of Medical Examiners, Dr. Edward Cranch, Erie, Pa., declared that the medical boards could more efficiently enforce the laws regulating the practice of medicine and the requirements of the board if medical education were under state control. From the same viewpoint Dr. James A. Duncan, Toledo, presented a paper on the subject, "If Medical Colleges were under State Control, would the State Medical Boards be enabled to determine more fully the standing," which question he answered in the affirmative. For the Medical Profession, Dr. Royal S. Copeland, New York City, said that if medical colleges were under state control, the medical profession would be more uniformly and efficiently educated and trained than by the present system. Dr. Horace G. Norton, Trenton, N. J., presented a paper in which he held that since the medical colleges are the source of the medical practitioner upon which devolves the care and the welfare of the people, they should be under state control. Special papers on the following subjects were presented: "The Necessity of Establishing a Rational Curriculum for the Medical Degree," by Dr. Henry Beates, Philadelphia; "Some Thoughts on the Supervision of Medical Colleges and the Conducting of State Examinations," by Dr. James A. Egan, Springfield, Ill.

The attendance was the greatest in the history of the Confederation, and the enthusiasm which began at the opening continued throughout the session. All papers were earnestly and intelligently discussed, the interest becoming so intense that it was necessary to limit the period of the discussions.

The Oregon State Board of Examiners, the Louisiana State Board of Medical Examiners (Regular), Dr. R. S. Copeland, New York City; Dr. James H. McDonald, Pittsburg; Dr. D. F. Lawrence, Columbus, and Dr. C. M. Hazen, Bon Air, Va., were admitted to membership in the Confederation.

The following officers were elected: President, Dr. Charles A. Tuttle, New Haven, Conn.; First Vice-President, Dr. James A. Egan, Springfield, Ill.; Second Vice-President, Dr. A. B. Brown, New Orleans, La.; Secretary-Treasurer, Dr. George H. Matson, Columbus, Ohio; Executive Council—Dr. N. R. Coleman, Columbus, Ohio; Dr. James A. Duncan, Toledo, Ohio; Dr. Charles H. Cook, Natick, Mass.; Dr. Joseph C. Guernsey, Philadelphia, Pa.; Dr. W. Scott Nay, Underhill, Vt.

#### MODERN HOSPITAL IN LARGEST HOTEL IN THE WORLD.

One of the numerous unique features to be offered by the new McAlpin Hotel, now in course of construction on the southwest corner of Thirty-fourth street and Broadway, New York City, is a fully equipped miniature hospital where cases, no matter how serious, can be treated with exactly the same care as in the best up-to-date private sanatorium. It is to be arranged so as to be able to comfortably accommodate twelve patients at the one time. Expert surgeons, physicians and trained nurses will be in attendance so that surgical operations of any character can be skillfully handled at a few moments' notice.

This practical and extraordinary addition to hotel

accommodations is to be situated on the twenty-third floor of this largest hotel in the world so that a patient can enjoy the same quiet and comfort as though being treated in the most tranquil locality in spite of the fact that the McAlpin is to be the most centrally located hotel in New York City.

Expert surgeons and medical men have been consulted by Mr. Frank Andrews, the architect of the hotel, and plans are being made for this miniature hospital so that it will be fitted with every modern appliance known to surgery in exactly the same manner as the best equipped hospital in any part of the country.

#### NEW MEMBERS.

Comstock, D. D.  
Fitzpatrick, E. B., Martinez.  
Crawford, A. K., Oakland.  
Carter, M. C., San Leandro.  
Foster, H. E., Oakland.  
Pond, J. H., Oakland.  
Enos, E. M., Oakland.  
Bowles, F. H., Oakland.  
Moore, G., Oakland.  
Dunn, W. L., Oakland.  
Wood, W. A., Oakland.  
Thompson, L. Q., Gridley.  
Thompson, L. L., Gridley.  
Hawkins, O. C., Biggs.  
Baumeister, E. E., Chico.  
Clark, Jno. A., Gilroy.  
Wing, L. A., Eureka.  
Taylor, T. P., Beaumont.  
Chapman, W. A., Corona.  
Koelig, W. C., Beaumont.  
Hennemuth, J. L., Waterford, Cal.  
Chiapella, Jos. D., Ripon.  
Evans, C. W., Modesto.  
Barbour, N. R., Lockford.  
Holland, J. A., San Andreas.  
Cooper, G. P., Angels Camp.  
March, W. B., Burson.  
Thompson, I. B., Oakdale.  
Buchanan, R. A., Lodi.  
Kingwell, J. J., San Francisco.  
Sobey, G. L., San Francisco.  
Brown, D., San Francisco.  
Brackett, G. F., San Francisco.  
Green, L. W., San Francisco.  
Ryer, M. B., San Francisco.  
Fuller, L. H., Taft, Cal.  
Williams, T. A., Pasadena.  
Seager, H. W., Los Angeles.  
Farron, E. D., Visalia.  
Oakley, H. W., Porterville.  
Melvin, J. T., Porterville.  
Johnson, C. E., Lindsay.  
Daley, J. E., Porterville.  
Weaver, B. F., Visalia.  
Patterson, T. J., Visalia.  
Callen, J. H., Alameda.  
Emerson, H. K., Los Angeles.  
Pierronet, L. M., Los Angeles.  
Rosenkranz, H. A., Los Angeles.  
Waterman, C. O., Long Beach.  
Hinman, C. J., Los Angeles.  
Bennett, C. L., Los Angeles.  
Johnson, E. J., Pasadena.  
Ellis, M., Los Angeles.  
Swift, E., Los Angeles.  
Paine, J. C., Pasadena.  
Anderson, H. O., Los Angeles.  
Forbes, H. J., Pasadena.  
Tholen, E. F., Tropic.

#### RESIGNED.

Thompson, C. H., Berkeley.

#### DEATHS.

Whitlock, Wm. A., Ukiah.  
Hibbard, W. E., Pasadena.  
Davies, W. H., Rialto.  
Plant, B. A., Santa Cruz.



# California State Journal of Medicine.

Owned and Published Monthly by the

Medical Society of the State of California

PHILIP MILLS JONES, M. D., Secretary and Editor

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## IMPORTANT NOTICE!

All Scientific Papers submitted for Publication must be Typewritten.

Notify the office promptly of any change of address, in order that mailing list and addresses in the Register may be corrected.

VOL. IX

JUNE, 1911.

No. 6

## EDITORIAL NOTES.

### SPECIAL NOTICE!

#### REDUCED RATES FOR THE AMERICAN MEDICAL ASSOCIATION MEETING, JUNE 26TH TO 30TH.

To Los Angeles, for the meeting of the American Medical Association, June 27th to 30th, a special rate has been made for those in California of one and one-third fare for the round trip, on the receipt-certificate plan. Pay your full fare going and get your receipt-certificate, which must be signed at the Registration booth in Los Angeles; you will then be able to purchase your return ticket for one-third fare.

Of course you have not forgotten that the American Medical Association is to meet this month in Los Angeles, beginning June 27th.

**THE A. M. A. MEETING.** And, also of course, you have made your arrangements to attend the meeting. It promises to be larger than had been expected, for a number of parties and special trains are being made up from Eastern points to come out to the Coast and combine a vacation trip with attendance upon the sessions at Los An-

geles. If you have not already made reservation of a room for yourself, you had better do so at once, as we learn that most of the larger hotels are already nearly, if not quite, fully reserved and the others are filling up rapidly. If you have any difficulty, write to the Chairman of the Committee of Arrangements, Dr. H. Bert. Ellis, Bradbury Block, Los Angeles, and the matter will be attended to promptly by the proper committee. A list of the hotels, with rates, and of the meeting places and headquarters was printed in the last issue of the JOURNAL. We who know our California do not need to be told that the entertainments provided will be everything that spells California hospitality. The committee has been very busy and a most elaborate program of such entertainment features has been arranged. The Hall of Exhibits will undoubtedly be found to be as attractive as usual, and it should demand some of your time. A number of our advertisers will have exhibits, and it would be an excellent thing for you to let them know that they advertise in your JOURNAL. Cutter, Allison, Rogers, Keniston & Root, Leitz, Victor, Scheidel-Western X-Ray Coil Co., and doubtless others, will have exhibits. People you buy books from, and instruments and things, will also be there. Let them know that you buy their goods—and find out if they advertise in your JOURNAL, and if not, why not. It all helps. It helps the manufacturer, it helps your JOURNAL and it helps you by just that much. You will find no exhibit of anything that is not exactly what it should be; the Association, its *Journal* and your own JOURNAL stand behind the exhibitors and the advertisers.

The annual meeting of the State Society at Santa Barbara was, in every respect, a most successful one.

**THE ANNUAL MEETING.** The hotel was comfortable and the management did everything in their power to make our stay pleasant. The weather was perfect and the outings most enjoyable. The scientific program was very good indeed, which fact was sufficiently proved by the attendance at the various sessions and the discussions which the papers brought forth.

The plan of having the Committee on Scientific Program retain its personnel, changing one member each year, will undoubtedly prove to be a wise change in our by-laws. Experience in getting up programs is half of the work; one soon learns what not to do and that is the most important thing. Dr. Lobingier, the chairman of the last committee, is to be congratulated upon the very excellent result of his labors. It was not expected that the attendance would be very large because of the coming

meeting of the American Medical Association in Los Angeles in June; a good many of our members who always attend the meetings did not wish to make two trips to the South so near together and wished to go in June. In spite of this, however, about two hundred registered, and a goodly number of these were from north of Tehachapi. It was frequently commented upon that the general tone of the meeting was cordial, friendly and pleasant. There were no fights and no unpleasantnesses to mar the harmony of the meeting and the House of Delegates did its work smoothly and well. The meeting was in every way a distinct success and those who attended will long remember it and the pleasant time everybody had.

Legislatures are fearful and wonderful things; they keep one excited for months, they leave one

#### CHANGES IN MEDICAL LAW.

dazed when they adjourn, and then, after one has had time to come back to normal and contemplate the result, he often finds some startling things have happened. In the last days of a legislature it is difficult to keep track of what passes and what does not; and then comes the added difficulty of finding out what the Governor has approved and what he has allowed to die a natural death. Two bills directly amending the medical law were passed by the last legislature and, at the eleventh hour, were signed by the Governor, for some reason or reasons that cannot be discovered. One bill, introduced by Hurd of Los Angeles, Senate Bill No. 875, in its original form contained a number of provisions the real import of which was to license almost any one who applied for a certificate to practice. This was beaten, but on reconsideration, Hurd amended everything out of the bill except one clause allowing the Governor to appoint the Board of Examiners without nominations from the various societies and associations which, under the former law, elected twice as many nominees as there were appointments to be made, and from these nominees the Governor had to make his appointments. At the time of writing, the Governor has not signified his selection of examiners. The other bill that passed was prepared by the attorney for the Board of Examiners and was intended to compel a licensed physician to practice under his own name and to make companies, and similar institutions, display in a conspicuous place the names of the licensed physicians employed by them to practice. It passed the Senate after being introduced by Senator Avey and was known as Senate Bill No. 261. In the Assembly a number of amendments were added to it, some of them vicious and some

of them absurd, but all of them bad. The Senate did not concur in all of the amendments, but it did concur in enough of them to give the lawyers some work to do in the future.

In the Hurd Bill, No. 875, the only change from things as they were is that the Governor appoints without suggestions, as already

#### NATURE OF THE CHANGES.

stated. In the Avey bill, No. 261, the changes are more extensive and more radical. The first one provides that the board "May issue a certificate to any person who has practiced a special branch of medicine and surgery, at the time this act goes into effect, for a period of not less than thirty-five years, fifteen years of which time shall have been within the state of California." This was introduced in order to allow a quack cancer specialist named Bohanon, of Oakland, to continue to follow his nefarious calling. It is ridiculously absurd on the face of it and in all human probability will be thrown out of court as soon as it gets there. The sum and substance of the amendment is to say that any one who has successfully violated the law of the state shall be rewarded for so doing and allowed to continue! The next change is one which allows any applicant who fails, but who has received not less than 75% in each of seven or more subjects, to be re-examined in those subjects only in which he failed. Another amendment allows "any surgeon honorably discharged from the United States army or navy, regular or volunteer," to obtain a license to practice upon filing a sworn copy of his discharge with the board and paying \$50. And finally, the amendment which was the original bill, creating a new section to the medical law to be known as Section 13a, raising the penalty to a maximum of one year in jail or a fine of \$1000, for any violation of the section. It is long, but the gist of it has already been referred to. It requires a licensed physician to practice under his real name, and requires companies, etc., to display the names of the licensed physicians who are doing medical work in their employ. It is intended to do away with the "Dr. Smith & Co.," famous German specialists, and the like. Of course, it will have to be fought out in the courts, but the chances are it will be sustained. It is practically identical with a similar section of the dental law. In addition to what has been said, it may be remarked in passing that the change in penalty allows the cases to be tried in superior courts and not in police courts, thus giving a better chance for a just verdict and sentence.

Flight from the importunate demands of medical practice for a peaceful season of renewed acquaintance with long neglected scientific methods and introduction to the more recent attainments of the medical profession, is the secret of professional youth and is

#### SUMMER STUDY IN MEDICINE.



the means of maintaining high scientific standards. The many excellent medical journals and the meetings of the State and National organizations are invaluable sources of knowledge and inspiration, but even the more recent graduate finds that only too soon the advance of medical science, bringing into prominence new methods and theories, makes inspiring meetings and instructive articles reminders that the profession has moved rapidly ahead and that he must quicken his pace or fall hopelessly behind. Only the few are able to leave their responsibilities long enough to spend a season in the medical centers of Europe or a few months in the medical schools of the east. The great majority are unable to remain for long beyond the reach of the telephone and the messenger. It is desirable nevertheless that they should regularly devote at least a few weeks every year or two to scientific study and discussion at some medical center. The region about San Francisco Bay with its hospitals and medical schools and its Universities certainly presents the essentials of an ideal place for the study and recreation of physicians.

Recognizing a duty to the medical profession, the Dean of the Summer Session of the University of California has added to the curriculum for the coming summer a group of three courses in Medicine for physicians and medical students, and has increased the number of courses in Hygiene by the addition of several courses in Public Health and Bacteriology. Among these courses are a practical course in laboratory clinical diagnosis, a laboratory course in morbid anatomy and histopathology, lectures and discussions of the more recent non-surgical methods of treatment, courses in public health, school hygiene, and bacteriology.

The summer session as a whole has shown a remarkable growth during the past ten years, and enrolled over a thousand students last year. If the courses in medicine and public health receive a response proportional to the importance of their subjects, the University will through them extend a helpful influence and will stimulate activity for the betterment of personal and public health in California.

W. A. S.

Considerable space has been devoted to the case of *Christie vs. Smith*, in which case Dr. Rae Smith, of

Los Angeles, was sued by Christie **MEDICAL** and successfully defended by the **DEFENSE.** State Medical Society, owing to the fact that an insurance company took advantage of a letter written by Dr. Smith to use for extensive advertising purposes. The letter was printed in the editorial pages of the last issue. From the tone of the letter a number of members might think that the burden of the defense of Dr. Smith had rested with the insurance company and that the State Society Medical Defense was not satisfactory. The reverse was the case. The State Society defended the case entirely alone and every bit of credit that may be due any one for the work is due the State Society. Our Medical Defense actually de-

fends; get that idea firmly into your head and keep it there. Every member in good standing will be defended, and defended as well if not better than he would be by any insurance company, by the attorneys for the State Society. It is no longer an experiment; Medical Defense is an accomplished and established part of the work of the State Society and will so remain. Every action will be defended to the limit of legal possibilities and without cost to the member. The JOURNAL has studiously avoided any controversy with the insurance companies, for the Council decided that such a course would not be dignified. We do not wish to enter into any controversy with them now; nor do we intend to do so. What we do intend, however, is to keep hammering on this question until every member realizes that his Society gives him full and complete protection against malpractice suits and that he does not need to contribute to the treasury of an insurance company unless he chooses to do so as a sort of philanthropic proposition. The State Society Medical Defense actually defends and protects.

The course of Lane Lectures arranged for this year will be given by Dr. Ernest Fuchs, Professor of Ophthalmology at the University of Vienna, during the week beginning August 21st. The subject is **THE LANE LECTURES.** one which should prove of the greatest interest to the profession of this state, as it represents a field of the utmost importance, though too often neglected, Systemic Diseases in their Relation to the Eye. The lectures will be delivered in English and will be largely illustrated; they will be given, of course, in Lane Hall, Sacramento street. A more detailed statement of the special subjects to be covered in the ten lectures, together with the dates of the several dissertations, will probably be published in the next issue of the JOURNAL. A large number of our members will be interested in this series of lectures.

Remember that the State Society office has a regular department of locations, exchanges, places wanted and places to be filled. **FOR SALE AND LOCATIONS.** There are always a number of younger men who are looking for openings, temporary or permanent, and there are always some men who have practiced for a number of years in some country place, who own their homes and have good practices, but who, for one reason or another, desire to move to another location. Sometimes no money payment is required; in other instances the leaver desires to sell his real estate. Some excellent places of this sort are on our list; places where one who wishes to live a quiet, country life, practicing his profession under pleasant surroundings and getting a comfortable income out of it, may do so. There is no charge for this service; the Society office exists for the benefit of the members, and we are all only too glad to be of assistance in getting physicians into communication with each other when they mutually desire to change their locations.



#### DR. JOHN C. KING.

Dr. King, the President of the Medical Society of the State of California who presided at the Forty-first annual session at Santa Barbara in 1911, was born at Pittsburg, Pennsylvania, in 1853. He comes of German-American (colonial) ancestry and was educated mostly in private schools. In 1874 he was graduated by the University of Nashville and began his career in medicine. For ten years he practiced his profession in the East and then, on account of tuberculosis, he came to California and settled down at Banning where he soon recovered his health. In 1880 he married Miss Hattie E. Shulze, of Circleville, Ohio. He has three daughters,

all graduates of Stanford University, and two of them high school teachers; the other is now a medical student. Dr. King has probably sought place as little as any man ever did, yet has received from the medical profession of this state the recognition which his sterling qualities and upright character unconsciously compelled. For twenty years he has been a surgeon for the Southern Pacific Railroad. He has been President of the Riverside County Medical Society, of the Southern California Medical Society, of the State Board of Medical Examiners and now of the Medical Society of the State of California. For twenty years he has been a school director in his community and has fulfilled other duties of a civic nature.

P. M. J.



## ADDRESS OF THE PRESIDENT.

JOHN C KING, M D., Banning.

*Gentlemen of the Society:* The constitution of this society imposes upon your president the duty of delivering an address and, by implication, imposes upon you the burden of listening to it. We cannot well avoid either the duty or the burden, but we may lighten them for each other a tiny bit by the exchange of a little mutual sympathy. My address will not be dignified by a title. I will simply try to talk for a few moments about the society itself, its needs and some things it does not need.

And first, permit me to thank you for the privilege of addressing you from this platform. The office you have conferred upon me is the richest gift within the power of the profession of this great state to bestow. Any recipient of the honor may be pardoned for a reasonable display of elation and pride. It has always seemed to me there were only two reasons why any one should be chosen president of this society. First, because of such acknowledged eminence that his election would add prestige to our body. Second, because of some conspicuous service rendered to the society, meriting reward. Obviously, I do not belong to either category and, therefore, you must have chosen me for reasons not personal to myself. Usually, and naturally, our presiding officer is sought in large centers, where colleges, hospitals, laboratories, enable men to grow bigger, to loom larger. In the country, environment is unkind to our development. All over California, in hundreds of hamlets, from the desert to the sea, are country doctors; earnest, studious, painstaking fellows, doing fairly good work—in spite of isolation, inadequate facilities and meagre incomes. Men who are forever striving just to keep up, never hoping to lead. And yet, the medical profession owes this debt to these men. Through their characters, and the quality of the work they have done, they have won for the profession the esteem and the confidence of the mass of the people; for the mass still lives in the country, not in the city. And when your consultation rooms are filled with country callers, please remember they are not there because of the inefficiency of the home doctor, but because his life and work have inspired their trust in all doctors. Now gentlemen I distinctly realize that my election was owing to your generous desire to recognize this class of men, the class to which I belong. And in their behalf I thank you very sincerely.

The secretary has frequently drawn our attention to the fact that he is not the society; meaning thereby, that no matter how strenuous and efficient his work may be, success can only be achieved through co-operation. Now the secretary is the most important single factor in our society work. If the fact alluded to be true of him, how much truer it is of the president, who is merely your executive servant. Whatever success may attend this meeting will depend, not on the president, nor upon all the officers combined, nor yet upon the efforts of our most cultured and thoroughly trained members, but upon the co-operation of all, both weak and strong. And I wish to thank you, in advance, for the co-operative spirit you will manifest at this meeting.

Last April, in San Francisco, several gentlemen whom we all admire and respect, asserted, in my presence, that there is too much politics in our State Society; that it is run by a clique. A few weeks later in Los Angeles, I listened to the same criticism and, in addition, to some invidious comparisons between the Southern California and the State Societies. The former is, in some few respects, the model society of the Coast. It has three hundred or more members, its semi-annual meetings attract from one to two hundred, its scientific work is excellent, its social functions more than pleasing, it has developed harmony and friendship among the men of the South, it is absolutely free from politics and cliquism. Such societies are exceedingly valuable. But should the State Society imitate such a model it would at once forfeit its present usefulness, which depends largely upon politics. The word "politics" has, to many minds, become synonymous with chicanery and trickery. True politics is the science and practice of government; the adjustment of the relation of the individual to the state. The development of the medical sciences during the past few years has rendered re-adjustment necessary. I need only refer, for proof, to the new powers vested in State Boards of Health and of Medical Examiners and to the fact that every legislative body, municipal, state and national, is wrestling with medical problems, striving to enact laws that will properly adjust the hygienic relations of the individual to the state.

The medical profession is, and of right ought to be, the guide and arbiter in such matters, because no other class of men devotes its life to these problems. This fact is instinctively recognized by law-makers and jurists. For instance, the U. S. Pharmacopeia is, by congressional action, the American standard of pure drugs; the Association of American Medical Colleges is our state standard of medical education, validated by our supreme court. The American Medical Association is the authorized and recognized exponent of American medicine. It includes the great mass of our most advanced thinkers and ablest practitioners. Its functions are twofold. First to develop medical science, to the end that each of us may become better qualified. Second, preventive medicine, embracing medical education or the prevention of quackery; the prevention of mosquito, fly and water borne diseases; school hygiene; child and woman labor; asylums and reformatories; prevention of venereal and dozens of other problems which are essentially political as well as medical. Now pure politics breeds antagonism among the ignorant and unrighteous, just as impure politics arouses opposition from the more honorable and better educated. Witness, the "League for Medical Freedom" that is to destroy the Great American Medical Trust—at the behest of the manufacturers of proprietaries and patents, the chiropractics, chiropodists, *et id omne genus*. The only medical trust in existence is the fact that the majority of the people trust their lives to us. The American Medical Association has no fee bill, no state society in America has one. The whole realm of preventive medicine detracts from our incomes rather than adds to them. These statements

are foolishly trite to us but are unbelieved by the people. The state society is an integral, a component part of the A. M. A. and must have politics. For some years past the state itself has made us a political factor by requiring us to elect or to nominate the members of the State Board of Examiners. This board brings our society into personal contact with every new practitioner and enables us to elevate our own standard. We publish a medical journal, and its publication involves questions of politics, ethical, business, medical. We dispose of a considerable cash income. We publish a register. We have a legislative committee and through it hope to influence such legislation as I have spoken of. We do many things that necessarily involve politics. They are the glory of this society. Scientific work is undoubtedly the major reason for our existence, but we must not overlook our other functions. We have approximately 2,000 members. If these were all chumps we would have plain sailing, no politics; they would simply follow a few leaders. As a fact, our membership comprises a very large proportion of the cultured and educated physicians of this state. These people have opinions based on education and sound sense. They do not all agree upon religious, social, business or political questions. It is unfair to expect them to agree upon society politics. Many of them would edit the JOURNAL differently; would expend our income in other, perhaps better ways; would prefer legislation along other lines. And yet, as in all politics, the majority must rule. I am sure our average intelligence is such that we will commit no vital error.

Now, is our society ruled by a majority or is it run by a clique? Please remember that our governing house is a delegated body, that its personnel changes from year to year. If you think a clique is in control, all you have to do is to get out and work in the primaries, elect the delegates you want. Some men remain in office year after year; possibly some men ought to, because it would be difficult for the society to replace the work they are doing. But no man can ever get in or keep in unless the delegates want him.

When I entered the profession, thirty-seven years ago, hygiene was an esoteric science, a knowledge of it was limited to the initiated, to so-called experts. The general public, and even the common herd of doctors, were not supposed to have the time or the intelligence to apprehend its intricacies. Furthermore, it was deemed unethical for those possessing such information to attempt to impart it to the said public through daily papers or current magazines; such a course was held to be a cheap method of advertising the individual. Time effects many changes. To-day we know the success of preventive medicine depends upon the education and sympathetic co-operation of the very public we formerly ignored. My text for this topic will be found in a letter written by the principal of a high school in a county seat not far from San Francisco. The writer was a former patient of mine, hence the letter. The recent register records nine doctors in that town, seven of whom are members of this society, but the writer does not state how many or which ones he consulted. First, since moving to that town (the

writer averred) his family has suffered from malaria. Second, mosquitoes abound. Third, upon inquiry among local doctors, he was told the mosquito theory of malarial infection was the product of ultra-scientific men who had no practical experience; that he need not fear mosquitoes nor go to any expense to protect his family from them. My comment upon the text is that our societies should devote more time to the common things of medicine, the things we erroneously suppose we all know about. And further, that upon us rests the burden of educating that small segment of the public that each of us can influence individually.

To-day, the problem of combating flies, mosquitoes, ticks and other hosts and carriers of pathogenic germs is the citadel which our warfare against disease is attacking. School hygiene, decent toilets, contamination of water supplies and similar questions are of as much importance to the country as to the city doctor. First, we must equip ourselves. The average city doctor can, perhaps, afford to be below par because he can always find some one to help him. But we of the country, isolated from professional assistance, should be as much ashamed to be without laboratories and libraries adequate to our needs as we would be ashamed to be unable to do a decent appendectomy. Second, we must try to raise the people to our own standard; induce them to see things from our viewpoint. The columns of our local papers are accessible to us all. Personally, I have had better results from talks to woman's clubs than from other methods. It is foolish for us to study these questions, settle certain principles, and then be angry with the people because they do not see things as we do. How shall they know without teachers? We need not fear that some of us may do these things for the sake of notoriety. The public is discriminating enough to recognize the man who "plays to the galleries." The only thing we need to fear is the public announcement of half digested fads and theories, the product of our own lack of study and equipment. In this connection, allow me to suggest that our very valuable State Board of Health Reports should be in every public library and should be mailed to every public school in the state.

The Sanatorium fad deserves more than passing notice. That hundreds of patients patronize these places who would do better under intelligent care at home, goes without saying. That well conducted institutions are an absolute essential to other hundreds, is an established fact. With the individual patient we have nothing to do. But the proper conduct and administration of sanatoria has become a problem of public policy. We have sanatoria for tuberculosis, for nervous and mental diseases, for drug habits and for almost everything else. Many of them deserve the confidence and support of the profession, many do not. Some are established by men who have had no training for the purpose. Others are run by so-called trained nurses, still others are fakes, pure and simple. I know of two such places, both fairly well patronized, where tubercular patients are kept without ordinary hygienic regulations regarding even the disposal of sputum. These sanatoria are multi-



plying at a rapid rate. The undeserving are soliciting and receiving patronage based upon the reputation of the better sort. State inspection and control of these places is, perhaps, utopian. It seems to me, however, that for the protection of our own members and of the many Eastern physicians who send patients to California, our society should grant its official sanction to such as are worthy and publish them in the JOURNAL. We could appoint a committee or commission, whose function it would be to establish a minimum standard of equipment and method, to personally investigate institutions and to grant or withhold its approval for a specified term. This investigation would, of course, be limited to those places asking for it; each of which would pay a fee sufficient to cover the charge of publication in the JOURNAL. I am sure that some such plan would redound to the advantage of legitimate institutions and also to the advantage of those who direct patients to them. It would seem to me, the prestige of indorsement by an official commission of this society would ultimately induce worthy sanatoria to seek it, while mere lack of endorsement would curtail the number and patronage of the unworthy.

Our House of Delegates will receive a report from its committee on Contract Practice. It would be out of place for me to anticipate the nature of this report or to attempt to influence the disposal of it. But I may be permitted to emphasize its unusual importance. From England, Germany, Austria and Canada come bitter complaints of the devastating effects of this evil upon the finances of our profession, and all the while the unparalleled progress of the medical sciences demands increased outlay on the part of the doctor who pretends to keep abreast of the times. The incomes of hundreds of our city doctors are being affected and the baneful practice is infiltrating the smaller towns and the country. We must protect ourselves, if we are to have any protection. I hope all members will assist the House in arriving at some wise decision, assist by manifesting discreet interest and friendly counsel.

During the past year the Western Surgical Association, through its president, has been investigating a kindred topic; fee division, joint fees, secret commissions and other forms of graft. That such an investigation is needful is evidence of lax moral tone in our profession. The surgeon pays twenty-five dollars to the "doctor" who sends the patient, the druggist pays twenty per cent. commission to the "doctor" who sends the prescription, the undertaker pays commission to the "doctor" who steers some poor widow to the coffin shop. These business transactions are similar, they are all on the same moral plane. It is quite unnecessary to inquire why such things are wrong. One never asks why the command was given "Thou shalt not steal." Any of us may sell our souls for money without arousing the interest of this society, but when a member barter the good name of the profession for coin the society should at once become alert. Each county society is arbiter of its own membership and should be very jealous of its type.

For many years the warfare against legitimate,

scientific medicine has centered upon the law creating the State Board of Examiners. Many in the profession, who have failed to apprehend the real aim and origin of the attack, have supposed that abrogation of that law, or its lax enforcement, would obviate further trouble. Indeed, some of our own members have supposed the law itself was the one and only bone of contention. Personally, I do not, for one moment, think that opposition to the law was other than part of an organized scheme to destroy modern preventive medicine. A study of the recent legislature will convince the most skeptical that the organization is both powerful and wise. The bill requiring physicians to practice under their own names, the bill to provide medical inspection of schools in certain cities; in fact, all bills conserving public health, were killed. The anti-vaccination law and the amended Hurd bill were passed. All this was accomplished with the avowed intention to destroy the so-called medical trust.

California is now represented in the U. S. Senate by a leading Christian Scientist, who will undoubtedly antagonize medical legislation there. Influential reviews, like the *"Arena,"* together with influential weeklies and dailies, like *Los Angeles Times*, have consistently and persistently attacked all forms of preventive medicine and all schools of scientific medical practice. Our efforts to oppose these conditions have been fitful and sporadic. A few have done hard work and good work, but our legislative committee has not been a homogeneous body nor has it accomplished much, as a committee. Many of us have been indifferent to the situation, or worse. To my mind, if we really mean business, we must work along other lines. For instance, when the senator from Riverside sought re-election, our County Society indorsed him and every member, regardless of political party affiliation, went to work for him, because he had done all in his power to advance public health laws. The Riverside representative, also, knowing the influence of our members among the people, has consulted us regarding all such questions. Our legislative committee should consist of men who will maintain a permanent bureau, who will expend time and money for the cause, will organize the profession of each county into a political unit. It is difficult to influence legislators during the rush, the turmoil and the trading of a busy session. It is easier to influence and pledge men who are uncertain of the results of an approaching election. Three thousand organized and united doctors can wield an immense power. This should be the aim of the committee. The Anti-Medical League referred to maintains a press bureau and is flooding the weekly and daily papers with anti-medical literature. In Riverside county the largest daily turns over all this material to a member of our County Society for editorial scrutiny. We should keep out of politics or do politics. There are those among us who make a fetish of professional dignity. As a matter of fact, the fight is before us. It is futile to attempt to ignore the situation. Moreover, the fight is not for personal or professional aggrandizement. It is one of the noblest battles that any body of serious, intelligent, honorable men can engage in. It is a fight

for the health of the people, against ignorance, superstition and charlatanism.

Probably no function we perform is more important than the nomination of members of the State Board of Medical Examiners. This must be done before we adjourn. It is unwise to defer consideration of men and the measures they advocate until the moment of election. While the delegates elect, every member should devote time, thought and influence to this question. The society should determine what policy it wishes the Board to be governed by, and should select men who will execute that policy intelligently, fearlessly and tactfully. The existing Board deserves kindly recognition of the excellent work it has done. It has maintained a fairly high standard, tempered by a discreet recognition of the difficulty of determining any man's ability by a mere written examination. It has endeavored to be just without being arbitrary and has, it seems to many of us, succeeded in allaying much of the popular prejudice against the Board.

Once again, the American Medical Association meets on the coast, meets in Los Angeles. In a very large sense the Association will not be the guest of the committee of arrangements nor of the city or county of Los Angeles, but of the State of California. It behooves every member of this society to be present at that meeting; and not that alone but, when present, to assume the responsibilities of hostship. Incidentally, this meeting will arouse general interest in the A. M. A. If our county societies are prepared to work they can gather 500 new members. There will be opportunity, too, for effort among the people. The meetings will be given newspaper publicity, the laity will be interested, we should acquaint it with the objects and functions of the association.

Each year some of us resign our burdens and pleasures to enter eternity. Half a line in the JOURNAL is all the notice we take of such. Would it not be well to appoint a necrologist who would give us an epitome of the salient points in the lives of those we miss, some recognition of the work they have accomplished, the good they have done. Now and then there is inspiration in a knowledge of what others have achieved, and even the lowliest of us deserves some graceful memorial. The report of the necrologist need not be long, nor need it occupy a place in our already overburdened program. It could be published in the last issue of the JOURNAL prior to our annual meeting.

Last November the census bureau published another appeal for an accurate registration of births. Not one state, not even a single city of our land possesses complete registration. It has been remarked that vital statistics constitute the bookkeeping of humanity, they are fundamental to the practical application of hygiene, the foundation of scientific public health work. The census bureau affirms that rates of infantile mortality cannot be given for any area in America because of imperfect registration of births and that, for the same reason, no accurate general mortality tables can be constructed. The international life tables exclude the semi-civilized countries of Turkey, China. The United States of America and Mexico because of

absent or imperfect records. Let us, by all means, assist our State Board of Health in making California statistics reliable.

In conclusion, allow me to place special stress upon the social life of this society. Too many of us regard our colleagues as rivals. Competition is keen, monetary demands are pressing and the pride of reputation stings when touched. We are apt to magnify our own success and the other fellow's failure. It is a very poor doctor indeed, who has never succeeded where a better man has failed. We forget that one has a right to be judged by his success rather than by his failures, and that while his failures occasionally fall into our hands his successes never do. We fail to remember that no one of us is always up to his own average. The corroding effects of professional jealousy hamper us in many ways. In some localities the disease seems especially virulent, in others it is more or less under control. I do not know any better remedy for it than close acquaintance. The better we know our fellow practitioner the better fellow he seems to be, as a rule. A quiet talk with a man we do not like very well often helps us to like him better, does both of us more good than to listen to his erudite paper. The member who only comes to read his contribution, then hikes off again, does not get much out of the meeting or say many good words about it afterward. Let us get better acquainted, that we may like each other better and, in particular, let the one who has attended a meeting or two welcome the one who has never been here before, so that he may want to come again. What we most need is a feeling of solidarity.

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#### MINUTES OF THE HOUSE OF DELEGATES AT THE 41ST ANNUAL SESSION OF THE MEDICAL SOCIETY OF THE STATE OF CALIFORNIA, SANTA BARBARA, CAL., APRIL 18 and 19, 1911.

FIRST SESSION, April 18th: The house was called to order by the president, Dr. John C. King, at 8:45 p. m. The secretary called the roll and 61 delegates responded.

The report of the secretary was read and the chair announced that, following the usual custom, he would appoint a committee, to be known as the Reference Committee on New Business.

The president appointed the following committee: Dr. Geo. H. Kress, chairman; Dr. Stanley Stillman and Dr. G. G. Moseley. The report of the secretary was referred to this committee.

The report of the Council was read by the chairman, Dr. C. G. Kenyon, and referred to the above committee.

The Committee on Scientific Work reported verbally by its chairman, Dr. Andrew Stewart Lobingier.

The Committee on Public Policy and Legislation reported verbally by its chairman, Dr. O. D. Hamlin.

The Committee on Arrangements reported verbally by one of its members, Dr. Rexwald Brown, in the absence of its chairman, Dr. T. A. Stoddard.



The Committee on Contract and Lodge Practice was read by the chairman, Dr. F. D. Bullard, and was referred to the Reference Committee.

The following communication from the American Medical Association was read by the secretary and referred to the Reference Committee:

At a meeting of the House of Delegates of the American Medical Association held in St. Louis, Wednesday, June 8th, 1910, the following resolution was presented by Dr. Hubert Work of Colorado:

Whereas, The plan of organization of the profession carried to its logical conclusion means that every member of a county society should be ipso facto a member of the American Medical Association, just as every member of a county society is ipso facto a member of a state society, and as it is the ultimate end of the plan that the American Medical Association should be coextensive with the organized profession throughout the land, and as nearly, if not quite, every state already has adopted the plan so far as making every member of a county society a member of a state society, therefore be it

Resolved, That the president appoint a committee to draw up details for extending the plan to the American Medical Association, and to present this plan to the various state societies for their consideration during the coming year, and to make a report at the next annual meeting of the House.

Dr. Alexander Lambert of New York moved as an amendment, that the resolution be referred to the Board of Trustees because it means a separation of THE JOURNAL from the membership in a manner which involves the finances of the association.

The amendment was seconded, accepted and the original motion as amended, was carried.

The Trustees have given this matter full consideration, and at a meeting held in Chicago on Feb. 3rd, 1911, the following resolution was passed:

Resolved, that the Board of Trustees refer to the various state societies the question of the desirability of extending the plan of organization as represented in the foregoing resolution, and request that the various state societies take action on this matter and report to the Board.

In accordance with this last resolution I beg herewith to transmit the matter to your society for consideration, and request that your report be sent to the Board of Trustees, American Medical Association, 535 Dearborn Ave., Chicago, Ill.

A telegram was read from the California Pharmaceutical Association as follows:

"Philip Mills Jones, The Potter Hotel, Santa Barbara, Cal.

"Dear Sir:—The California Pharmaceutical Association extends greetings to the physicians assembled in convention at Santa Barbara and assures the medical profession of its desire to co-operate with that body in matters affecting the public health and in such matters as will serve to foster brotherly relations between the

two professions. With best wishes for a healthful and enjoyable meeting.

"W. R. DICKINSON, President.  
"By F. I. LACKENBACH."

The Secretary was instructed to forward an acknowledgment of the same.

Dr. Jas. H. Parkinson introduced the following resolution which was duly seconded by Dr. H. Bert. Ellis and unanimously carried:

*Resolved:* That the thanks of the House of Delegates of the Medical Society of the State of California be tendered to Dr. R. E. Bering for his very efficient services in connection with the publication of the Register and Directory, and that the secretary be instructed to transmit the same in proper form.

The following resolution was introduced by Dr. Parkinson and referred to the Reference Committee:

*Resolved:* That a copy of the final draft of the program be mailed to each member of the Society at least two weeks before the meeting.

The following amendment was introduced by Dr. Parkinson and under the by-laws laid on the table for twenty-four hours:

*Resolved:* That Sec. 6, Article 6, of the by-laws, be amended by substituting in line four, the word "three" for the word "five," and by striking out the words "by consent" and substituting therefor "that members opening and closing discussions shall be allowed five minutes."

Dr. René Bine introduced a resolution asking that the Medical Society of the State of California meet in San Francisco in 1915. This resolution was declared out of order by the chair for the reason that the by-laws state that the place of meeting shall be decided annually.

There being no further business before the House, the minutes of this session were read and approved and the House adjourned.

SECOND SESSION, April 19, 1911: The House of Delegates was called to order by the president at 8:45 p. m., 56 delegates responded to the roll call.

*Place of Meeting:* Del Monte was nominated as the place of meeting for the annual session of 1912, and there being no other nominations, the secretary was instructed to cast the ballot for Del Monte.

*President:* Dr. Jas. H. Parkinson placed in nomination the name of Dr. Thos. W. Huntington of San Francisco; the nomination was seconded by Dr. Briggs of Sacramento and Dr. Hamlin of Oakland. There being no other nominations, it was duly moved, seconded and carried, that the secretary cast the ballot of the House of Delegates. Dr. Huntington was then declared president.

*First Vice-President:* Dr. H. Bert. Ellis of Los Angeles, placed in nomination the name of Dr. C. S. Stoddard of Santa Barbara for 1st Vice-President. There being no other nominations, it was duly moved, seconded and carried that the secretary cast the ballot of the House of Delegates. Dr. Stoddard was then declared duly elected.

*Second Vice-President:* Dr. O. D. Hamlin placed in nomination the name of Dr. J. R. Walker

of Fresno for the office of second vice-president. There being no other nominations, it was duly moved, seconded and carried, that the secretary cast the ballot of the House of Delegates. Dr. Walker was then declared duly elected.

*Secretary:* Dr. Geo. H. Kress placed in nomination the name of Dr. Philip Mills Jones for the office of Secretary. There being no other nominations, it was duly moved, seconded and carried that nominations close and that the Chair cast the ballot of the House of Delegates. It was then announced that Dr. Jones was duly elected.

Dr. T. W. Huntington was then escorted into the House of Delegates and introduced by the president. He extended in a few well chosen words his thanks to the Society for the honor conferred.

*Council; 5th District.* To fill the term of Dr. A. E. Osborne, expired 1911. Dr. Osborne was nominated to succeed himself, and there being no further nominations, it was duly moved, seconded and carried that the secretary cast the ballot of the House of Delegates for Dr. Osborne.

*Seventh District.* To fill the term of Dr. E. N. Ewer, expired 1911. Dr. Ewer was nominated to succeed himself, and there being no other nominations, it was duly moved, seconded and carried that the secretary cast the ballot of the House of Delegates for Dr. Ewer.

*Ninth District.* To fill the term of Dr. A. H. Mays, expired 1911. Dr. John H. Kuser was nominated, and there being no other nominations, the secretary was instructed to cast the ballot of the House of Delegates, which was done.

*At Large.* To fill the term of Dr. A. B. Grosse, expired 1911. Dr. John C. Spencer was nominated, and there being no other nominations the secretary was instructed to cast the ballot of the House of Delegates, which was done.

*First District:* Term expires 1912. To fill the vacancy caused by the resignation of Dr. Fred Baker. Dr. F. R. Burnham was nominated, and there being no other nominations, the secretary was instructed to cast the ballot of the House of Delegates, which was done.

*The Board of Examiners:* The following were nominated for candidates for the Board of Medical Examiners, from which number five are to be selected by the Governor: Drs. S. H. Buteau, Harold Hill, W. P. Burke, H. P. Newman, A. Soiland, Harry Reynolds, Clarence Quinan, A. S. Lobingier, G. F. Reinhardt and W. W. Roblee. There being no other nominations, it was moved, seconded and carried that the secretary cast the ballot of the House of Delegates for these nominees, which was done.

*Committee on Scientific Work:* Term expires 1915. Dr. Dudley Fulton was nominated, and there being no other nominations, the Secretary was instructed to cast the ballot of the House of Delegates, which was done. Term expires 1914, to fill the vacancy caused by the resignation of Dr. C. A. Dukes, Dr. Harry E. Alderson was nominated, and there being no other nominations, the secretary was instructed to cast the ballot of the House of Delegates, which was done.

*The Committee on Public Policy and Legislation:* The following nominations were made: Dr. Rene Bine, chairman; Dr. Geo. Tucker of Riverside and Dr. F. B. Carpenter of San Francisco. There being no other nominations, it was duly moved, seconded and carried, that the secretary cast the ballot of the House of Delegates, which was done.

*Committee on Arrangements:* The following nominations were made: Dr. Saxton Pope of Watsonville, Dr. W. L. Teaby of Monterey, and Dr. A. L. Cothran of San Jose. There being no other nominations, the secretary was instructed to cast the ballot of the House of Delegates, which was done.

*Delegates to the American Medical Association,* to serve two years: The following nominations were made: Dr. O. D. Hamlin of Oakland, Dr. Granville MacGowan of Los Angeles. There being no other nominations, it was duly moved, seconded and carried that the secretary cast the ballot of the House of Delegates, which was done.

*Alternates to the American Medical Association:* The following nominations were made: Dr. F. C. E. Mattison, Pasadena, Dr. W. F. Cheney, San Francisco, and Dr. M. L. Emerson, Oakland. There being no other nominations, it was duly moved, seconded and carried that the secretary cast the ballot of the House of Delegates, which was done.

*The Committee on Public Health:* Dr. F. C. E. Mattison nominated the following: Drs. Stanley P. Black, Pasadena; Geo. L. Eaton, San Francisco, Ray L. Wilbur, Stanford University, L. M. Powers, Los Angeles, and N. K. Foster, Oakland. There being no other nominations, it was duly moved, seconded and carried that the secretary cast the ballot of the House of Delegates, which was done.

*The Report of the Reference Committee on New Business* was then called for and was read by the chairman, Dr. Geo. H. Kress. The report was first read in full and was then read section by section, each section, on motion, duly seconded and carried, being adopted. The report was then adopted as a whole.

Your Reference Committee on New Business begs leave to submit the following report:

1. Thanks to the County Societies. Your committee recommends that this House of Delegates thank the officers and members of the County Societies for the excellent co-operation, whereby the membership of the county units and of the State Society have been so greatly increased during the last year and urge continued effort along these and other developmental lines.

2. Membership in the A. M. A. Your committee recommends that the plan to have membership in the county unit carry with it membership in the American Medical Association be commended; provided that a practical plan to effect this end can be devised by the House of Delegates of the A. M. A.

3. Publication of Scientific Program. Your committee recommends that the Committee on Scientific Program and the State Secretary print in the April State JOURNAL a provisional program of the



annual meeting, giving approximate dates and time on which scheduled papers will be read.

4. Medical Defense Fund: Your committee recommends, as soon as the assets of the Society will so permit, that the Board of Councilors gradually set aside a separate savings deposit fund, say up to about \$2000.00, this fund to be used for emergency medical defense, if at any time need therefor should arise.

5. Necrology: Your committee as per the president's recommendation, proposes an amendment for a standing committee of three on Necrology, and recommends that a special committee of three on necrology be appointed for the coming year.

6. Vital Statistics: Your committee commends our President's recommendation that the members of the State Society earnestly co-operate with the State Board of Health in its efforts to compile proper birth, morbidity and mortality statistics.

7. Special Committee on Athletics: Your committee recommends that a special committee of five be appointed to investigate the effect of athletics on young people in schools and colleges and to report thereon at our next session.

8. Committee on Public Policy and Legislation: Your committee recommends that the Committee on Public Policy and Legislation be increased from three to six, two members to retire annually, and that for the coming year, three additional members be appointed by the Board of Councilors.

9. Contract Practice: Your committee recommends that the special committee on contract practice be continued and requested to make a still further and detailed investigation of this evil during the coming year and to report thereon at the next session; and further, that for the present this society go on record, concerning the purely commercial hospital organizations, that in its opinion, all physicians on contract with such organizations and all physicians offering unlimited medical and surgical service on contract at nominal prices be considered as acting inimically to the best interests of the profession and society, and further, that all County Societies be requested to ask all members doing such work to withdraw therefrom, and further that next year, more drastic action on this subject be considered by this Society.

10. Amendment Regarding Time of Papers: Your committee recommends that the substitute amendment to Sec. 6 of Art. 6 of the Constitution and By-Laws substituting the word 15 instead of 20 as the maximum time length of papers be adopted.

11. Your committee recommends that the assessment for 1912 be fixed at \$3.00 and subscription to the JOURNAL \$1.00 as per last year's arrangement.

Respectfully submitted,

(Signed) GEO. H. KRESS, Chairman.  
STANLEY STILLMAN.  
G. G. MOSELEY.

*Proposed Amendment to Art. VI of Constitution and By-Laws:*

1. Change Sec. 3 of Art. VI of the Constitution and By-Laws to read:

Sec. 3. The Committee on Public Policy and Legislation shall consist of six members (two to retire each year) and the president and secretary, etc.

2. Add Sec. 3A to Art. VI of Constitution and By-Laws.

The Standing Committee on Necrology shall consist of three members. This committee shall print in the April State JOURNAL a report on members who have died during the previous year.

On motion, duly seconded and unanimously carried, the sincere thanks of the Medical Society of the State of California were extended to the medical profession and the citizens of Santa Barbara for their courtesy and hospitality.

The following resolution was introduced by Dr. Dudley Fulton at the request of Dr. Ross Moore, who was also given the privilege of House of Delegates to discuss the same.

*Whereas*, At the present time there is a movement under way in this state and particularly in Los Angeles, to organize a State Society for Mental Hygiene such as is in existence in a number of other states of the union, be it

*Resolved*, That the Medical Society of the State of California heartily endorses the movement and recommends to its members that they co-operate with said society in its efforts to disseminate knowledge regarding the Hygiene of the Mind.

On motion of Dr. Parkinson, duly seconded and carried, this resolution was referred to the Council with power to act.

There being no further business before the House of Delegates the minutes were read and approved as read. The House of Delegates then adjourned sine die.

PHILIP MILLS JONES.

*Special Committee on the Effect of Athletics on Young People in Schools and Colleges:*

The formation of this committee as recommended by the Reference Committee on new business, having been approved by the House of Delegates, the president-elect, Dr. Thos. W. Huntington, appointed the following committee: Dr. F. M. Pottenger, Monrovia, chairman; Drs. H. D'Arcy Power, San Francisco, Dr. Philip Chancellor, Pasadena, Dr. Ray L. Wilbur, Stanford University, and Dr. Geo. F. Reinhardt, Berkeley.

## REPORT OF THE SECRETARY AND EDITOR.

*To the President and Members of the House of Delegates, Medical Society of the State of California:*

The report of your secretary and of the editor of your Journal, will this year be combined in the present statement, and will differ from the reports of previous years, in that it will be very brief.

The report of the Council and the financial statement which has been handed you, will indicate with sufficient clearness that the promises of nine years ago have been fulfilled.

During the year 1910, twenty-one members died and sixteen resigned, a total of thirty-seven. On

December 31, 1909, there were 1924 members; on December 31, 1910, there were 2087 members, an increase of 163 in spite of the 37 lost through death or resignation.

The early months of 1911 indicate that the membership by the end of the present year will have shown a still greater increase.

The Register and Directory for 1910 was published at a profit, in spite of almost overwhelming difficulties.

For some months the experiment was tried of dividing up the work connected with the management of the Journal, and having different members of the Publication Committee attend to different specific duties; it was found that this experiment was not a success, and consequently the plan was abandoned after five months' trial.

In the latter part of 1910 the Journal was increased by sixteen additional pages, and I believe the condition of the Society will warrant keeping the Journal at this size for the present year.

The editor has of course made mistakes, possibly owing to the fact that he is merely human, but his efforts in conducting the Journal have been consistently to encourage all parts of the State, all County Societies, to favor no one more than his fellow, and to encourage the productivity of a large number of our members who are rich in experience but who are backward in presenting this experience to their fellow practitioners.

Respectfully submitted.

PHILIP MILLS JONES,

SECRETARY.

#### REPORT OF THE COUNCIL.

*To the President and Members of the House of Delegates of the Medical Society of the State of California:*

Your Council has the honor to report to you the various matters concerning the business of the Society which came before it during the year 1910.

All of the books and accounts of the Secretary and of the office of the Society were submitted to a firm of chartered accountants and a mimeograph copy of their statement of the condition of the Society for the year ending December 31, 1910, has been handed to you. This statement shows a very interesting condition of affairs. All of the notes, amounting to \$2000, together with the interest accrued, were paid in December, 1910, with the exception of one note which was overlooked by the Secretary in making out the checks.

Including the payment of these notes and the interest thereon and of about \$250, which represents legal expense in defending the property right of the Society in the Register and Directory, and including the unusually heavy expenses of the last meeting, the year's work shows an excess of receipts over disbursements of \$228.14. The auditors allowed for depreciation of office furniture, fixtures, etc., \$300, and yet they show an excess of assets over liabilities of \$1816.97. We again desire to call your attention to the fact that not one dollar has been paid out until the payment has been approved by the Auditing Committee of the Council. Each voucher

representing a payment must be signed by both members of the Auditing Committee. We emphasize this for the reason that some members have suggested that unauthorized payments might have been made. This is not the case.

*Publications:* Register and Directory. At the beginning of the year it was considered doubtful that the Society would be able to publish the Register and Directory owing to the many complications which had followed the attempt of our former advertising agent to appropriate this publication. Very largely through the hard and most efficient work of Dr. R. E. Bering, chairman of the Advertising Committee, sufficient advertising was secured to make it possible to bring out the book. On the 31st of March of this year, \$1427 had been received through advertising and the sale of copies of the book, and \$1425.95 had been paid out for expenses connected with this publication. Since that time other sums have been received, so that eventually there will have been a profit to the Society on the 1910 Register and Directory. The Council has passed a vote of thanks to Dr. Bering for his most efficient services and respectfully recommends that the House of Delegates take similar action.

The expenses of the Journal are slightly increased, as sixteen additional pages have been added for the last five months of the year 1910. Even with this addition, however, the Journal expense, as indicated in the Auditor's report, is less than it has been for the last three preceding years.

The ruling of the Postoffice to the effect that membership dues could no longer be considered as subscriptions to the Journal, did not take effect until January, 1911, so that the result of this change in the manner of operating the Journal business and the Society account cannot be reported upon until next year. We may say, however, that while the change resulted in a great deal of extra work and confusion in the office of the Society, it is working out quite satisfactorily, and we believe that by the end of the year the Journal will have a larger number of subscribers than in any previous year.

*Medical Defense:* Beginning with July 1, 1909, the Society undertook to defend all of its members should they be sued for malpractice for any alleged cause which occurred during the time when they were in good standing with the Society. We have now to report to you that a large number of threatened suits have been averted and that six suits have been filed, all of which suits are being cared for by the attorneys for the Society. One of them, Christie vs. Smith, was tried in Los Angeles, the trial lasting nine days, resulting in a verdict for the defendant. Many features connected with this case have attracted more or less attention and it is with considerable satisfaction that the Council reports the thorough protection of Dr. Smith by our medical defense.

Never was the Society in such good and healthy condition as on the thirty-first of December. The advertising of the Journal has steadily increased, the membership in county societies has likewise increased, and approximately \$500 more than in any previous year was received from county society assessments.



In closing this report your Council takes particular pleasure in advising you that all outstanding bills up to and including March 30th were paid; that the Society had absolutely no outstanding obligations; that all suits for malpractice were properly guarded and the preliminary retaining fees for their defense paid, and that the Treasurer furnished us a certificate under date of March 30th, showing a cash balance of \$3456.07. It must be borne in mind that this amount will be necessary to defray the expenses for the balance of the year, and it is possible that some of the suits now on hand may prove to be costly. Furthermore, your Council believes that our effort should be to create a fund of a few thousand dollars to have on hand in case of any emergency. We therefore recommend that the assessment for 1912 be fixed at \$3 and subscription to the Journal \$1, which will make the total amount \$4, which is the amount assessed formerly when the Postoffice ruling was that dues could be considered as subscriptions.

Respectfully submitted.

C. G. KENYON, Chairman.

#### REPORT OF THE BOARD OF MEDICAL EXAMINERS.\*

Since the last report was made to this society, April 19, 1910, the State Board of Medical Examiners has given four examinations:

Examinations	Physicians		Osteopaths	
	Passed	Failed	Passed	Failed
April, 1910	60	14	13	3
August, 1910	101	21	22	9
December, 1910	45	22	15	13
April, 1911	40	20	8	4
Total	246	77	58	29
Per cent. Phys.	69	31		
Per. cent. Osteo	66 2-3	33 1-3		

The records of the board show that the number of osteopaths taking the State Board of examinations is increasing steadily, and that the percentage of those passing is larger each time. This would indicate that the instruction given by osteopathic schools is rapidly approximating to the instruction given in the medical schools of the country.

The records also show that no naturopath as such has ever presented himself for examination, though a number of men now listed as licensed naturopaths had tried the examinations several times and failed. Some even tried through the medium of the courts to obtain a license to practice, failing there also. The amended medical act of 1909 gave 105 naturopaths, among whom were included irregular practitioners of many kinds, a license to practice naturopathy—whatever the term may mean—in the state. These men, now practicing under a naturopathic license, are reported from time to time as practicing medicine, but it has been impossible to obtain sufficient evidence to prosecute them. Of the 105 naturopaths 80 are located in Southern California.

By an act of the Legislature of 1907, 885 osteopaths received a license to practice; since that time

94 osteopaths have been licensed after examination by the board. Of this total number 76% are located in Southern California.

Three bills came before the Legislature during the past session which were of great interest to the board. Had these bills, become law, the work of prosecuting illegal practitioners would have become simple and effective; but none of the three, listed as Assembly Bills Nos. 257, 258, and 752, came into effect.\*

Assembly Bill No. 257 (Senate Bill 261) was a new section to be added to the existing Medical Act. This section was framed to

- (a) Prohibit the sale of a license to practice medicine or osteopathy;
- (b) Prohibit the practice of medicine under a false or assumed name;
- (c) Prohibit the appending of the letters "M.D." without having a diploma from a recognized medical school and a license to practice in the state;
- (d) Require the registration of all persons practicing under a company name.

Assembly Bill No. 258 (Senate Bill 262) was an amendment to the Medical Act recasting section 13 of the present Act, so that when fines were levied, they would be paid by the court directly to the State Board; as the law now stands, they go first into the county treasury, then into the state treasury, and before the board can obtain the money, much time and correspondence is involved. Bill No. 258 raised the maximum fine from \$500 to \$1000, and the maximum imprisonment from 180 days to one year.

Bill No. 752 prohibited by unlicensed persons the business of advertising and selling, or offering to sell, any drugs or herbs, with an attempt to cure or mitigate disease.

The failure of these three bills emphasizes the fact that the long task of standardizing and legalizing the practice of medicine is discouraged rather than encouraged by the people at large. The demand for physicians who shall be examined and licensed by the state, comes not from the public seeking protection, but from public-spirited physicians who recognize that the police power of the state rightly used could relieve the people of the odium of its present medical profession. The purpose of medical legislation is to exercise the police power of the state in protecting citizens from the dangers of improperly educated physicians. How unready the people of this state are for such protection was never more clearly evinced than by the actions of their representatives in the last Legislature; they emasculated the above-mentioned bills with amendments foolish and absurd; for example, they would compel the board to license a cancer specialist who has been able to evade the law for 35 years, except in the payment of small fines several times during a long period of successful practice!

At the San Jose meeting of the society, the delegates from the South, deprecating the fact that illegal practitioners were overrunning their part of the state, urged that names in the list of physicians

\* Read at the Forty-first Annual Meeting of the State Society, Santa Barbara, April, 1911.

\* Since this report was written, Assembly Bill 257, rendered ineffective and even vicious by amendments, has become a law.

about to be sent to the Governor, from which appointments would be made for members of the State Board, should be so chosen that a majority of the board would come from Southern California. This achieved, they hoped to more successfully prosecute the illegal practitioners in their midst. Just what effect the presence of a majority of the board in the southern part of the state would be expected to have, on the prosecution of illegal practitioners, has not been made clear by the work accomplished since that time.

In this matter of prosecution the money problem is paramount; how to prosecute without money is a question the board has not yet solved, and it always costs money to collect evidence. Very few physicians are willing to go hunting for evidence, and less willing to appear in court, especially when a case has been postponed from time to time. Many physicians decline to appear in court at all. Patients who have been treated by illegal practitioners will rarely if ever testify against them. They are more willing to testify against a regular practitioner with a hope of obtaining damages for alleged malpractice, than they are to appear against an illegal practitioner. An inexplicable fact!

W. W. Kaufman, of the firm of Stratton, Kaufman & Torchiana, whose services were retained in December, 1909, for the purpose of prosecuting illegal practitioners, has formulated a plan that gives promise of excellent results. On his recommendation the board employed C. A. Taggart as a special agent, and several assistants to aid him in the collection of evidence. Mr. Taggart has proved himself highly efficient, as the following tables indicative of his work in San Francisco and Los Angeles will show:

## SAN FRANCISCO.

	Lic.	No Lic.	Dent.	Opt.	Phar.	Chin.	Unclas.	Alias
Fined . . . . .	8	1	2			6		
Dism. . . . .	3	3	1	2		3	6	2 (4)
Set for T. . . .	3		1			1	1	
Com. Evid. . . .	3			1	1	1		
Par. Evid. . . .	34	4				4	25	5 (6)
Total . . . . .	7	4	4	3	1	15	32	7

In December, 1910, Mr. Kaufman arranged with Mr. Morrow to take charge of the prosecutions in Los Angeles. Considering that Mr. Taggart and his assistants have been collecting evidence there for little more than three months, the work done is remarkable.

## LOS ANGELES.

	Lic.	No Lic.	Dent.	Opt.	Alias	Chin.	Abor.
Fined . . . . .	1					1	
Dism. . . . .	0						
Set for T. . . .	10	2			1	7	3
Com Evi. . . .	4	1			1	2	2
Par. Evi. . . .	243	243					

Valuable assistance in the apprehension of illegal practitioners has been given by D. N. Tasker, an osteopathic member of the board; Dr. Geo. H. Kress, secretary of the Los Angeles County Medical Society; the Los Angeles city officials, the U. S. attorney, and the P. O. inspectors.

The board is again ready to undertake the prosecution of illegal practitioners outside the larger cities. Almost a year ago, having this plan in mind, the board sent a letter to the secretaries of all known medical societies of the state, regular, homeopathic, eclectic, and osteopathic societies. The letter stated that we had employed an attorney and were prepared to undertake a vigorous prosecution of illegal practitioners, and that we wanted the societies to collect for us the names of the violators of the medical act living in their vicinity. Astonishing as it may seem, not a single reply did we receive. How we can prosecute illegal practitioners in the country if the people refuse us help I do not know. However, we are about to send out this letter again and hope for better results. I might interpolate at this point that no violation of the laws of practice of osteopathy or naturopathy has ever been brought to the attention of the State Board, either in city or country.

Under the direction of Mr. Kaufman, Mr. C. A. S. Frost, who has so successfully handled the cases in the San Francisco courts, has been placed upon a regular monthly salary with the care of country cases especially assigned to him. It is needless to add that unless the board obtains a list of country illegal practitioners it will not continue to employ Mr. Frost for this special purpose.

The board spent for prosecution during the period from April 1, 1910, to April 1, 1911, \$2251. During the same period there was received from the State Treasury \$500 which had been collected in fines. This leaves the expenses of prosecution \$1751 over the receipts.

The present board with the recently finished examinations ended its legal existence. Few changes, perhaps fewer than might be wished, have been made in the method of examination. New and old members alike were desirous of making them more practical. The plan, for example, to hold the examination in physical diagnosis at the bedside presented more difficulties than could be overcome, viz:

- To maintain secrecy as required by law.
- To find a hospital or dispensary where such a clinic could be held.
- To provide competent help to give such an examination.
- To give requisite time to one subject. Twenty minutes for each of 150 applicants would require 50 hours for one examination.

No one questions the desirability of making examinations practical, but how to bring this about has yet to be demonstrated.

The practice of giving 12 questions of which 10 are to be answered has been proved to be satisfactory. It is my opinion 15 questions out of which 10 are to be answered, would give the examiner a better idea of the applicant's ability by giving him a wider choice. To ask a question to determine what an applicant knows, is one thing;



to determine what he can answer is another and lesser matter.

Before closing this report I wish to say that in the seven years' experience that I have had on the State Board of Medical Examiners, there has never been a board that has worked together so harmoniously as this last one. The distrust which some members of boards have had of other members in the past has never shown itself by word or act. The constant effort of the board has been to administer the law without fear or favor.

G. F. REINHARDT.

#### ANNUAL REPORT OF THE PUBLIC HEALTH COMMITTEE OF THE MEDICAL SOCIETY OF THE STATE OF CALIFORNIA.

The past year has been quite active along certain lines. An attempt was made to organize the Public Health Committees in the various County Societies. If funds could be provided to employ an organizer to go to the counties and take up the work with them, better results could be obtained along public health lines. If this could be done, preferably by the State Board of Health, or the Public Health League, we feel an organization in our State Society could be effected that would be productive of great good.

Members of our committee have given a number of public lectures on public health matters, and at a number of the towns in Los Angeles County we have had these meetings in connection with the Los Angeles County Public Health Committee. These have been illustrated with lantern slides. We have gotten the dairymen to attend these meetings, and were able to secure the co-operation of the farmers and dairymen.

We feel that we have been able to secure such co-operation between the dairymen and the farmers, and in these talks considerable attention has been paid to educating the farmers in securing a better hygienic condition of their premises, both as regards dairies and general sanitation on the farm.

The car sent out by the State Board of Health has been very valuable from an educational standpoint. We would recommend that this work should be followed up by the State Board of Health to keep the matter before the dairymen and ranchers, and to secure, if possible, a more scientific management of farms, devoted to the raising of dairy and other household products.

An effort has been made to show that it is as important to screen the residences as the milk houses.

A fight for clean milk, a proper disposal of garbage and the handling of all foodstuffs has been pushed wherever we could find an opportunity to do so.

We would recommend that suitable legislation should be enacted which will place the shipping of milk under the jurisdiction of the State Board of Health. The Railway Company should provide suitable cars for the handling of the milk. These cars should be properly iced, so that milk while transferred from the farm to the distributing point would be kept at a proper temperature. This prob-

lem does not seem to offer many objections from a financial standpoint, for it could be done at a comparatively small additional cost.

The co-operation of the Public Health League and the State Board of Health might secure such convincing legislation, and progress cannot be made very rapidly until the transportation difficulties for handling milk are greatly improved.

An effort has been made in Los Angeles towards the solution of the proper disposal of garbage, but we have not succeeded as yet in securing an ideal ordinance that will give the Health Department absolute control over the disposal of all garbage.

F. C. E. MATTISON, Chairman.

#### REPORT OF THE COMMITTEE ON CONTRACT AND LODGE PRACTICE.

By F. D. BULLARD, M. D., Los Angeles.

Mr. President and Members of the Medical Society of the State:

Your committee on Contract and Lodge Practice begs leave to make the following report:

According to the principles of ethics laid down by the American Medical Association, physicians are forbidden to give their services gratuitously to insurance and other allied companies. They are enjoined to conform as far as possible to the custom in vogue in the matter of compensation in the communities in which they reside. They are forbidden to engage in advertising methods, to give or receive commissions, to employ "cappers," or to do the things usually practiced by charlatans. They are especially enjoined to recognize the rights of their professional brethren.

For physicians to disobey these injunctions and commit these evil practices individually would be manifestly unprofessional. Under the guise of hospital associations and fraternal organizations, these medical crimes have been committed indirectly, and this has become so great and widespread an evil as to demand our careful attention.

The hospital associations, usually composed of and controlled by the laity, rarely owned in part or wholly by physicians, follow customs that would not be tolerated for an instant if carried on by private individuals. They all employ agents, who solicit business for their respective companies. These agents care nothing for medical ethics, but ply their trade with the sole idea of their pecuniary advancement. They make loud and boastful claims as to the advantages of their plan, and the skill of their doctors. They advertise by posters in the streets, on the cars and in the press.

The Chairman of your committee asked the business manager of one of these concerns what they would do in the event of having a case requiring special surgical skill. He bombastically replied his surgeons could do anything. In point of fact the medical men connected with his institution were of very mediocre ability. Only one institution (owned by two doctors and one nurse—their office girl) treated your committee with courtesy. The largest of these institutions in the south—the American Hospital Association—refused to furnish your committee with data and by its manager expressly

condemned the California State Medical Society for attempting to regulate medical practice.

The doctors in this association treated us fairly, but the adverse animus of their business manager was pronounced.

The doctors employed by these institutions vary in medical ability, but no well-known surgeon or specialist is employed by them, in spite of their extravagant claims.

Your committee hold that such institutions should be discouraged in every possible way. As our membership is determined by the several county societies, our position is advisory and direct methods of combating them must be carried out by the county units.

New conditions have produced new problems, but this form of practice is a flagrant evil and should be specifically condemned. The formation of societies for mutual benefit or insurance, we do not condemn; but, whatever plan is adopted by such institutions the fee given the physician must be an individual affair between patient and doctor.

The plan as now carried on by these associations is nothing more than wholesale thievery, full of vicious practices, concealed charlatanism, and unethical methods. These corporate bodies have no medical soul, know no medical ethics, and are formed for doing the specific work of physicians.

We therefore suggest that the county medical societies forbid their members from engaging in these associations, from doing any work for them except for full individual fees, and from receiving salaries from them unless resident in a bona fide hospital.

We urge upon all county societies to compel any of their members engaged in this business not to renew their contract, and if possible to abrogate their present ones at once. We recommend that this kind of contract practice be stamped as unprofessional. We recommend that members of the county societies refuse to consult with physicians who after our warning continue in such work.

It has been discovered that certain hospital and ambulance concerns have given special discounts to these hospital associations. We recommend that steps be taken to ascertain just what institutions do this and that they be warned the continuance of such practices will result in the withdrawal of the patronage of the regular profession.

Several years ago two members of the Los Angeles Medical Association resigned under duress for engaging in this class of work. Recently the Los Angeles Homeopathic Medical Society expelled a member for the same reason.

In reference to Lodge and Fraternal Societies your committee found that, while there are many abuses and much to be criticized, yet there is a possibility of improvement in the conditions. The radical difference between the lodge and the association practice is this: The lodge is an insurance only with incidental medical services; the association is solely and primarily a hospital and medical business. To be sure lodge practice is bad for the profession and the laity. It brings medical work into disrepute, encourages commercial competition and underbidding, and deprives medical colleagues of the legiti-

mate fruits of their practice. This evil is all due to the fact that the lodge doctors are elected as monopolists and paid for their work wholesale.

A little more money and a retail payment of the doctor at a reasonable rate for the work actually done, or the granting of a certain amount of sick benefit to the individual patient, allowing him the choice of physician, would solve the difficulty entirely. In some lodges this plan is already adopted.

The lodge physician is not as a rule taken very seriously. The patient himself, if very sick, sends for his regular physician and gets heartwhole and individual attention. The lodge physician is limited to ordinary diseases, the contract association doctor attempts anything however delicate or difficult, and his association sounds his praises however deficient he may be in real ability.

In reference to lodge practice, the committee recommends that an effort be made through the county units to have their members abstain from such practice as now carried on, to endeavor to unite lodge physicians in demanding from their respective lodges a more just and equitable treatment to the end that there be compensation more commensurate with the work done.

If the fraternal societies fail to recognize the rights of the physicians there would remain only the alternative of the physician resigning either as a lodge doctor or as member of the Medical Society.

We realize that the campaign against contract practice will be educational and we urge all medical colleges to instruct their students in medical ethics and fair play.

#### THE SECTION ON EYE, EAR, NOSE AND THROAT.

The section was called to order at 2 p. m., April 18, by Chairman Dr. Wm. Ellery Briggs of Sacramento; Dr. Barton J. Powell appointed by the chair as secretary. Dr. Herbert C. Moffitt read the first paper entitled "The Eye in Its Relation to General Medicine." The discussion was opened by Dr. Wm. Ellery Briggs and followed by Dr. W. H. Roberts of Pasadena and Dr. Cullen F. Welty of San Francisco. Dr. Moffitt closed the discussion.

Dr. Harrington B. Graham of San Francisco read a paper entitled "A Résumé of Modern Operative Procedures in Ear Conditions" (with demonstrative specimens). The discussion was opened by Dr. Wm. Ellery Briggs and followed by Drs. Cullen F. Welty and Barton J. Powell; Dr. Graham closing the discussion.

Dr. Hugo A. Kiefer read a paper entitled "A Case of Carcinoma of the Left Lid." The discussion was opened by Dr. Wm. Ellery Briggs and closed by Dr. Kiefer, after which the section adjourned until 10 a. m., April 19.

The meeting of April 19, 1911, with Dr. Wm. Ellery Briggs in the chair: The first paper read was "The Eye in Its Semeiological Aspect," by Dr. Wm. F. Blake of San Francisco. The discussion was opened by Dr. H. B. Graham of San Francisco, and followed by Drs. Cullen F. Welty, Edward C. Sewall and Wm. Ellery Briggs. The discussion was closed by Dr. Blake.

The next paper by Dr. Edward C. Sewall, entitled "Removal of Foreign Bodies from the Lung" (report of cases). The discussion was opened by Dr. Wm. Ellery Briggs of Sacramento and followed by Dr. Barton J. Powell of Stockton, Dr. H. B. Graham of San Francisco, Dr. J. R. Walker of Fres-



no, and Dr. Cullen F. Welty of San Francisco. The discussion was closed by Dr. Sewall.

The following executive committee was duly elected: Dr. W. H. Dudley, chairman; Dr. Barton J. Powell, vice-chairman; Dr. Harrington B. Graham, secretary; this committee to act for the next year. It was further decided that the special section at the next session have a stenographer and that the proceedings in detail be published. The section adjourned to meet in Del Monte, 1912.

BARTON J. POWELL, Secretary.

#### MEMBERS REGISTERED AT THE FORTY-FIRST ANNUAL MEETING.

Adams, L. P.; Alderson, H. E.; Adams, R. D.; Abbott, F. F.; Anderson, Chas.; Abbott, George E.; Alvarez, W. C.; Alden, E.; Armstrong, W. R.

Brown, Rexwald; Bakewell, Benj.; Burnham, F. R.; Butin, M. R.; Baker, G. S.; Blake, C. R.; Browning, C. C.; Bine, R.; Barry, Wm. T.; Brown, P. K.; Barber, S. A.; Benzinger, R.; Ballance, H. N.; Black, S. P.; Beckett, W. W.; Blake, W. F.; Barlow, W. J.; Buelar, F. D.; Briggs, Wm. E.; Bradbury, R. M.; Brainerd, H. G.; Brown, H. C.; Bullock, N. H.; Bullard, R. T.; Bishop, T. W.; Bonyng, C. W.

Crabtree, H. T.; Cheney, Wm. F.; Culver, G. D.; Conrad, D. A.; Crease, F. J.; Cole, Geo. L.; Cothran, A. L.; Chapman, E. D.; Chancellor, B. T.; Crosby, Daniel.

Dawson, J. C.; Dudley, W. H.; Deckers, C. A.; Doherty, S. M. L.; Dilworth, W. D.; Dillon, Ed.; Dresser, R. O.

Ellis, H. B.; Edwards, T. C.; Emerson, M. L.; Edwards, W. A.; Eaton, G. L.; Eversole, H. O.; Ewer, E. N.; Eastman, M. E.; Ebright, Geo. E.

Frick, D. J.; Fly, E. M.; Friend, S. B.; Force, J. N.; Fulton, D.; Franklin, J. H.; Fleischner, E. C.; Gilliam, A. T.; Gay, F. R. and wife; Graham, H. B.

Hadden, David; Henderson, A. M.; Hogan, Jas. J.; Hoisholt, A. W.; Harker, G. A.; Hare, Geo. A.; Hall, E.; Hamlin, O. D.; Huntington, T. W.

Jaffa, M. E.; Jenkins, H. O.; Johnson, B. K.; Kenyon, C. G.; Kiefer, H. A.; Kirk, J. H.; King, J. C. and wife; Keglar, W. H.; Kelly, A. S.; Kress, G. H.; Krotoszyner, M.

Lucas, W. T.; Lilley, J. F.; Low, S. P.; Lum, W. T.

Mansar, T. W.; Milton, J. L.; Miller, F. W.; Moseley, G. G.; Moffitt, H. C.; Morton, A. W.; Mansfield, L. F.; Moore, E. C.; Mattison, F. P.; Martin, H. R.; Morrow, H.; McCleave, T. C.; Morton, L. B.; Mattison, F. C. E.; Moore, Ross J.; Marxmiller, H. G.

Nusbaumer, Pauline S.; Newcomb, A. T.; Orbison, Thos. J.; Oliver, H. R.; Oldham, J. Y.; Ophuls, W.

Peers, R. A.; Parker, G.; Power, H. D'Arcy; Pottinger, F. M.; Powell, B. J.; Peoples, S. Z.; Pond, J. H. and wife; Peters, Lulu H.; Parkinson, J. H.; Powers, L. M.

Rothganger, Geo.; Reinhardt, G. F.; Roadhouse, C. L.; Roblee, W. W.; Remondino, P. C.; Roberts, W. H.; Runekel, G. H.; Raud, H. T.; Rothschild, Max.

Sewall, E. C.; Stoddard, T. A.; Stoddard, C. S.; Snow, Wm. F.; Lobingier, A. S.; Sidebotham, Harold; Stafford, O. R.; Soiland, A.; Scott, A. J.; Sherck, H. H.; Stover, W. M.; Sleeper, K. R.; Swift, Percy Edward; Stillman, S.; Sandholdt, J. P.

Tait, F. Dudley; Thomas, F. W.; Tucker, G. E.; Terry, Wallace I.; Thomas, C. P.; Tyler, H.; Thomas, H. G.; Taylor, A. M.

Van Patton, P. S.; Van Zwalenburg, C.; Wilbur, R. L.; Walters, H. S.; Whitman, C. H.; Walker, J. R.; Warden, C. C.; Welty, C. F.; Wills, Wm. LeMarque; Ziemsser, Hans.

#### SCIENTIFIC EXHIBIT AMERICAN MEDICAL ASSOCIATION.

*Annual Session, Los Angeles, June 27-30, 1911.*  
*Cartoon Contest. Supplementary Instructions.*

##### AWARD.

It has been decided to increase the cash award from \$100 to \$200 for the six best cartoons dealing with any one or all of the following health problems:

##### SUBJECTS.

(a) *Insects in the Causation of Disease.*—Literature to consult: United States Department of Agriculture, Bureau of Entomology, L. O. Howard, Chief; circulars of any of the leading municipal or state boards of health.

(b) *Beneficent Effects of Vivisection.*—Literature to consult: *Ladies' Home Journal*, April, 1910, page 21; *Harper's Weekly*, June 25, 1910, page 5; *Science*, December 2, 1910, and February 26, 1909.

(c) *Pure Food and Adulterated or Contaminated Foodstuffs.*—Literature to consult: United States Department of Agriculture, Bureau of Chemistry. Ask for notices of judgment for 1909 and 1910.

##### PROPRIETORSHIP OF PRIZE PICTURES.

These will become the property of the Association.

##### PURCHASE OF OTHER CARTOONS.

Such of the cartoons as are acceptable to the Committee will be purchased if the price asked is reasonable. In view of possible purchase each artist should name the individual and collective price of cartoons.

##### SIZE, EXECUTION AND FRAMING.

Cartoons should be done in India ink. Size of cardboard not less than 9 x 12 inches. Each cartoon must bear the signature of the artist. If framed at all, the molding should be light.

##### TIME LIMIT.

All materials must be in the hands of the Committee at Los Angeles by June 20, 1911.

##### SHIPMENT.

If by express, pack with care and send prepaid. By mail, registration will insure safe delivery. Address to "Scientific Exhibit, American Medical Association, 422 Auditorium Building, Los Angeles, California."

##### NOTIFICATION OF INTENTION TO PARTICIPATE.

This should be given the Director of the Scientific Exhibit at the earliest possible moment. Address Dr. Frank B. Wynn, Director Scientific Exhibit, 311 Newton Claypool Building, Indianapolis, Indiana.

#### ORIGINAL ARTICLES

##### NOTES ON A NEW SIGN IN SCARLET FEVER.\*

By GUSTAVE H. TAUBLES, M. D., San Francisco.

In the *Presse Medicale* of February 27th, 1911, there appeared an article in which Pastia of Bucharest drew attention to a new sign by means of which an early and positive diagnosis in scarlet fever would be facilitated thus enabling treatment, pre-

\* Read before the San Francisco County Medical Society, May, 1911.

vention of complications and prophylaxis to be provided at the earliest possible moment.

The sign is described as consisting in an intense continuous, linear pigmentation of the skin folds across the anterior surface of the elbow, varying in color from rose red to dregs of wine and even appearing ecchymotic. These lines vary in number from one to four, and the eruption on the skin lying between them, when they are multiple, resembles that on the rest of the skin. The time of appearance of this sign is simultaneous with the appearance of the rash. It persists not only during the eruptive period but for a varying time afterwards, even until desquamation is complete. Its occurrence in the skin folds of the axilla has been observed but it is neither so constant nor as permanent in this region as in the arm.

Pastia believes that this sign will be as useful in scarlet as Koplik's in measles, and especially so in those cases where the accompanying symptoms are doubtful or where the rash has disappeared before the case has been seen by the physician. Marbe found this sign in one case of measles and 94 out of 100 cases of scarlet at Bucharest. In Hutimel's clinic in Paris, 29 out of 30 cases of scarlet presented this sign.

Having the opportunity to see a number of cases of scarlet fever in the isolation ward at the City and County Hospital, and also in private practice, the writer has attempted to verify the above the report. A number of cases of fever, eruptive and non-eruptive, were examined with especial regard to discolorations of the skin folds of the various flexures. Two cases of acute suppurative tonsilitis, with temperature of  $103^{\circ}$  and  $101.8^{\circ}$  respectively, presented no sign. The same holds true of several cases of acute catarrhal tonsilitis and pharyngitis. Several cases of pulmonary tuberculosis running a temperature of from 1 to 3 degrees of fever, a case of acute appendicitis not operated and another similar case that had been operated the day before, both with fever, did not have the sign present. Four cases of erysipelas, in two of which the chest as far as the axilla was involved, also proved negative with regard to the sign.

The above cases seem to confirm that this reddening of the skin folds is not present during, or due to, a mere elevation of temperature of shorter or longer duration. A series of severe diphtheria cases, all of which were seen within the first three days after the onset of the acute symptoms, all with positive swabs and all injected with antitoxin, failed to show this sign. This is interesting in view of the sore throat, occasionally with a membrane, seen early in some cases of scarlet fever.

With measles, the results while tending to confirm Pastia, were not so satisfactory. However, in the absence of this sign together with the absence of the typical scarlet fever tongue appearance, we were enabled to place two children in the measles ward who had been sent in to the hospital diagnosed as scarlet fever cases.

The possibility of error in diagnosing measles is illustrated in the brief account of the following case:

A little girl, M. A., aged five, was sent to the hospital on the second day of illness. She presented a typical, blotchy, measles rash, coryza, conjunctivitis, coated tongue, Koplik's spots, etc., with a temperature of  $101.2^{\circ}$  rising to  $104.8^{\circ}$  on the following afternoon. Two days later the individual macules assumed a deep rusty red hue and became ecchymotic, not disappearing on pressure. On the fifth day of the disease the sign was visible in the left elbow fold but nowhere else. However, in view of the pronounced characteristic appearance of the hemorrhagic measles rash, and the absence of any other symptoms of scarlet fever, the sign did not cause any doubt as to the diagnosis. With the fall of the temperature to normal on the ninth day there was no visible desquamation. The mark in the elbow lasted for ten days longer, gradually fading out.

The other case that was not in accordance with the rule was a sister of the above patient, aged three. She came into the hospital about five days after the older sister and presented a typical measles case. Her eruption was most marked on the second day after entrance, temperature  $103.8^{\circ}$ , reaching  $104.4^{\circ}$  on the third day. From this time on the case proceeded toward recovery with fever going down by lysis until it touched normal on the tenth day of the disease. On the fourteenth day there was a rise of two degrees and a slight cough with respirations increasing to 56 for a short time. Examination revealed only a few rales, both coarse and fine, which were heard best posteriorly over the lower portions of the thorax. Coincidentally there appeared on the chest a red blush similar to scarlet in color but not punctate, and the sign appeared very faintly in the left elbow fold and was still visible eight days later. The bronchitis was over in three days and the temperature became normal again. In this child the papillae of the tongue were very red and prominent at the time of the second rise in temperature and the edges of the tongue were quite red while the surface was coated; in other words the appearance was not dissimilar to the strawberry tongue of scarlet fever. Hoping to ascertain whether or not this set of symptoms denoted an intercurrent scarlet fever superposed on the measles, this case has been carefully watched for desquamation and on the fifth day after the rise in temperature had subsided, branny scales were in evidence on the neck, in the axillary folds and on the thighs. Later desquamation proved more pronounced and was accepted as evidence of scarlet fever.

Baby S. W., five months old, entered with an unmistakable measles rash, which rapidly darkened and assumed a hemorrhagic character. On the fourth day the sign was visible faintly in both elbows and lasted two weeks.

Two cases of erythema following exhibition of potassium iodide in rather large doses did not show the sign.

In eighteen cases of scarlet fever seen almost daily from the onset until completion of the desquamation, every one showed the sign. Of these cases, four presented instead of the typical rash a mottled blush over the chest and rendered the immediate diagnosis, aside from the sign, uncertain until the typical rash appeared. In the majority of cases, 13, the sign lasted for from one week to three weeks after the rash had disappeared. Three showed it in the elbows only. In the others it was visible in other flexures. In scarlet fever the writer has not seen the sign as darkly red as Pastia describes it, a claret color being the darkest. In the measles cases it was very dark, however.

One case where the sign was of use might be de-



tailed at some length. A case of scarlet fever of undoubted diagnosis was seen at the Central Emergency Hospital and a history elicited of a brother that had had measles one week before. This supposed measles case on inspection showed a slight branny desquamation of the skin of the neck similar to that of measles, but the sign being positive, the case was also isolated and underwent a typical desquamation later. This would illustrate the value of the sign in prophylaxis where the necessity for positive diagnosis calling for quarantine is desired.

In most of the cases which were seen on the first day of the eruption (five) the sign was not as deep in color as on the succeeding day when the eruption had become more pronounced in color. No cases of this series were seen before the eruption took place so that further investigation into the question as to its value as a very early sign is desirable before the subject can be regarded as definitely settled.

Five cases seen by other doctors were reported as having the sign positive, making twenty-three in this series.

In addition to the elbow folds the skin of the folds of the groin, nates, popliteal space, axilla, wrists and base of the neck were observed. While the sign was recognized in these situations in many of the cases, it was not so pronounced nor so constant as in the elbow and always disappeared sooner than the elbow sign.

The writer has been assisted by a very simple manoeuvre to accentuate the appearance of the sign by pressing the skin over the front of the elbow. This causes the familiar momentary paling of the general eruption but leaves the red stripes of the sign more prominent by contrast with the surrounding white area.

The purpose of this paper has been to draw the attention of the profession to this sign rather than to critically investigate its value or occurrence. The writer is convinced that it really exists as a part of the picture of scarlet fever both during and, in the majority of cases, after the eruption has manifested itself. The fact that it will appear in measles will not detract from its usefulness as much as might appear since those cases of measles in which it was observed were of the most pronounced type, with a tendency toward the hemorrhagic. In every case where doubt as to the diagnosis had been expressed and the sign was present, the course of the disease proved it to be scarlet fever.

The writer takes this opportunity of expressing his thanks to Dr. D'Arcy Power, who placed the City and County's service at the author's disposal after his term had expired; also the Sanitary Inspectors, Drs. Butler, Curtis, Kuykendahl and Muller, who have co-operated in the work of investigating this sign.

To briefly recapitulate:

1. The sign approximately as described by Pastia has been identified in 100% of the cases.
2. It is of use in diagnosis of cases where the rash is atypical.
3. It is of use in diagnosis of cases seen after

the rash has subsided and before desquamation is pronounced.

4. Those cases of other diseases (measles) in which the sign was present were so palpably not scarlet fever that its value is hardly to be regarded as impaired by this occurrence.

## THE CELL IN MODERN MEDICINE.\*

By HOELL TYLER, M. D., Redlands.

Whether the living beings which we call cells are, or are not, the simplest form of life, we do not know; there are some facts which tend to show that they are not.

All animals and plants are either unicellular or multicellular organisms. The unicellular organisms have the same basic physiologic functions that the multicellular organisms have. They take in food-stuff, digest it, assimilate it, reproduce their kind and adapt, or adjust, themselves to their surroundings or environment.

The individual cells of the multicellular organisms possess all of these functions, but in different degrees. As we ascend the scale from the simplest forms of life to the most complex, we observe a constantly increasing degree of differentiation. For instance, in some of the lower forms of marine life, the tissues of the animal flow around an article of food and engulf it, or limbs, like tentacles, cover it. The cells of the surface coming in contact with the food, secrete an enzyme, or enzymes, which digest it. When the process of digestion is completed the body flows away, or the tentacles open out, and the excreta is left. In animals a little higher in the scale, a temporary digestive tract is formed constantly in one part of the body. Here is a greater attempt at specialization. In man we have a highly specialized digestive system. We put food into one end of a tube which extends through the body. The cells lining this tube secrete various substances which act upon the different elements of the food and change it so that certain parts are taken up and delivered into the circulating fluids of the body. Some of these cells are highly specialized, and arranged in groups, which we call organs, such as the pancreas, the peptic and salivary glands. Muscle cells, arranged in groups, by their special function of contractility, propel the contents of this tube and finally eject the waste from the lower end. From a time shortly after birth, until the death of the individual, this tube contains chemical substances and unicellular organisms, many of them pathogenic, which, if allowed to pass through the layer of epithelial cells lining this tube, are capable of endangering the life of the individual. In case this layer of cells is broken through, or destroyed in part, other cells at once attempt to protect the body from harm. Witness the process following ulceration and perforation, or the onslaught of disease germs like the typhoid bacillus.

Many of the groups of cells, or organs, connected with the digestive tract, communicate with each other, and have their functions regulated, retarded

\* Read at the Forty-first Annual Meeting, State Medical Society, Santa Barbara, April, 1911.

or accelerated, started or stopped, by substances which they secrete, and which are carried from one organ to another through the blood stream, chemical messengers,—a wonderfully interesting field for study.

Again, that most highly specialized group of cells composing the nervous system, regulates and controls, within certain limits, all of these groups of cells, and all of the other cells of the body, except those leading a free and independent existence in the blood stream and among the fixed cells of the organs, the various corpuscles of the blood.

Some of these corpuscles, like the polynuclear and the mononuclear leukocytes, are very slightly differentiated and resemble very closely many of the amebæ found in our streams and ponds and the free waters of the globe. These cells feed upon dead leukocytes, dead tissue cells and organisms, pathogenic and non-pathogenic, gaining entrance to the blood stream, or penetrating the protecting layer of cells forming the skin and mucous membranes. They constitute a mobile army marshaling itself to any point needing defense against invading pathogenic organisms. They are endowed, like all cells, with weapons of offense and defense. They manufacture chemical substances capable of poisoning many pathogenic cells, and others, enzymes, which digest them. They also elaborate substances, capable, to a certain degree, of neutralizing, and rendering harmless, the toxins and enzymes, or weapons of offense and defense, of disease germs; namely, antitoxines and antienzymes.

The fixed cells of the body have, in varying degree, these same weapons of offense and defense. Because of the special functions which they have been called upon to perform, the fixed cells have relinquished many of the functions of cells living in a free state. They are dependent for their continued existence, and condition of health, upon the complex processes taking place in this community of living individuals.

It has long been observed that various disease germs attack, as a rule, certain tissues, the other tissues being immune. For instance, the diphtheria bacillus is confined to the upper respiratory tract, the typhoid bacillus to certain glands in the intestine, the gonococcus to the anterior urethra in the male, the pneumococcus to the alveoli of the lung. Under certain conditions, which are worthy of much study, these germs are able to maintain an existence among various other tissues of the body.

This peculiar vulnerability of certain tissues is further illustrated in facial erysipelas. Here we have a strain of streptococci usually commencing their depredations in the skin about the bridge of the nose, or inner canthus of the eye, and being confined to the region of the face and scalp.

Certain tissues have acquired a degree of immunity against organisms prone to attack them. As an instance, the surgeon invades the rectum, the bladder and the urethra, and offers many indignities to the tissues in the presence of various pathogenic organisms, with comparative impunity. The same operative traumatism in other tissues, under like conditions for infection, would be followed by

dire results. The same holds good in connection with the other end of the alimentary canal, and the upper air passages.

Man protects himself from vicious and dangerous wild beasts by means of his superior intelligence. He does not even require the aid of much scientific knowledge for success. Empirical knowledge is sufficient. Recently, a celebrated American hunter, "Buffalo" Jones, and his cowboy companions, armed simply with lariats, have been able to overcome the African lion, the king of beasts. But not until much accurate, scientific, correlated knowledge had been acquired, recorded and disseminated, was man able to defend himself individually and collectively against the terrible and deadly horde of microscopic foes surrounding him. Even to-day, lack of intelligence, and the dissemination of this knowledge, is resulting in the destruction of thousands in China by a unicellular organism which has been kept within due bounds on this coast.

For countless ages there has existed an unceasing conflict between the various forms of microscopic life. This conflict is maintained in the culture fluids of the laboratory. It is seen in the septic-tank, instituted for sanitary purposes. The agriculturist finds that the amebæ in his soil destroy the bacteria which help to make food for his crops. It is probable that every kind of unicellular organism has acquired, during these ages of strife, weapons of offense and defense. The weapons of offense are toxins, extra-cellular and intra-cellular, together with enzymes. The toxins to poison, the enzymes to digest, liquefy and thus annihilate the foe.

Study of unicellular organisms has entirely changed our conceptions of heredity, because the transmission of acquired characteristics is here very common and observed by everybody.

The subject of immunity, of inflammation, of repair and of regeneration, are matters of physiology and pathology of the cell.

The cells of the nervous system, the most highly differentiated of any in the body, have two functions. They regulate and control, within certain limits, the vital processes of the groups of cells, called organs, the internal economy of the body, and they adjust the organism as a whole to its environment. The cells of the brain stand in direct relationship to one of the most marvelous conditions confronting us in the universe; namely, consciousness. Through these wonderful brain cells, matter and force become aware of their existence.

### INTESTINAL HEMORRHAGE IN HERNIA.\*

By REXWALD BROWN, M. D., Santa Barbara.

The matter of hernia, simple and complicated, has given rise to such a wealth of literature that it is largely commonplace to present the subject to a body of medical men. It seems hardly possible to add material of moment to the numerous type cases considered from any of the angles, clinical, diagnostic, pathological, and therapeutic. This may be true—our errors lie in assuming that every case

\* Read at the Forty-first Annual Meeting of the State Society, Santa Barbara, April, 1911.



can be made to fit into some one of the type cases—in not recognizing that certain cases present wide variations from the usual. Through this loop-hole, this mental inertia, this habit of thought which does not carefully analyze every clinical feature in connection with each new hernia problem creeps the mortality in some one or more cases wherein the surgical management has been altogether satisfactory to the operator, and a happy convalescence is expected.

My purpose in the following history is to picture one of the variants and to call attention to a clinical feature which may suggest formidable complication in what otherwise are hernias of supposedly minor concern.

Mr. W. J. R., age 54, was brought to Santa Barbara by Dr. F. A. Brown of Lompoc on November 21st last. I did not see patient until within one hour of the operation on the following morning. Dr. Brown gave this history of the case: November 9, Mr. R. suffered with several attacks of paroxysmal pain which appeared to originate in and below a tumor mass occupying the right inguinal canal—the pain radiated throughout lower part of abdomen. Examination revealed general abdominal tenderness and tympany. There was no temperature. Vomiting had occurred once. Treatment consisted of hot stupes to abdomen and high injections. Pain slowly grew less intense and finally disappeared altogether after an attack of profuse vomiting. The vomitus contained much "coffee grounds" material which the doctor did not see but which he believed to be blood. From this time till date of operation Mr. R. had no more pain or tenderness, abdomen became soft and bowels moved daily and freely. Dr. Brown's diagnosis was ulceration of the bowel as a complication of a right inguinal hernia. To avoid possible future strangulation he had advised radical operation for the cure of this hernia and also for a large serotal hernia from the left inguinal canal, present ten years and always reducible.

Previous History.—There had been several attacks similar to above during past year, readily relieved by tablets of unknown composition prescribed by another doctor—no history of vomiting of blood, however. The tumor mass in right inguinal canal had been present for about six years, had grown little in size and had never been reducible.

Mr. R. as I saw him for the short time before the operation appeared much emaciated. He thought he had lost twenty or twenty-five pounds within the last two months. Examination of the mass in the right inguinal canal found it to be of hen's egg size, very hard and occupying area over external abdominal ring. It did not extend toward internal ring and gave no impulse on coughing. There was no special fullness in femoral canal and no impulse. Examination of the abdomen revealed slight tenderness in right iliac fossa, and tenderness and slight rigidity in epigastrium. I felt Mr. R. was a very sick man—not altogether due to hernia but more perhaps from a hitherto unsuspected carcinoma of the pylorus—the emesis of blood, if such it were, I inferred had come from this. The sharp abdominal pains in the iliac fossa I concluded were appendiceal colics and had in some way, reflexly perhaps, aggravated the supposed carcinoma. I did not believe the mass in the right inguinal canal was a hernia—thought it probably a benign tumor. However, I concluded to attack it first, inasmuch as its removal would be a short and simple procedure. And if the tumor were of no import, I could immediately do a laparotomy for the graver condition or conditions.

The incision over the tumor mass quickly dispelled my beliefs. We were dealing with a large omental mass, very hard and fibrous, and covered with only a filmy peritoneal coat. This omental mass lay pressed into the external inguinal ring, having ridden over Poupart's ligament from the femoral opening, ob-

literating the tissues forming the anterior wall of the femoral canal. In the center of the omental mass and wholly capped by it was a knuckle of small bowel, a loop of some three inches in length. Both the inner surface of omentum and the bowel showed recent inflammatory attacks—and these were adherent to each other at several points. There were several small black areas on the bowel, especially near the turning of the loop where it was angulated almost to obstruction—a Richter hernia. The adhesions were fairly easily loosened except at the angulation where the bowel tore rather deeply as it was freed, necessitating its repair with linen suture. The femoral opening was very large and there was no constriction of bowel or sac at this point. A large part of the omentum was resected, and the remainder and the loop of bowel were separately returned to the abdomen without difficulty, and the usual repair done of the femoral opening. On the left side the Andrews imbrication method was carried out.

Apparently the operation was wholly satisfactory. An inflamed loop of bowel had been properly dealt with and the pathology explained the abdominal pain in the right lower quadrant. During patient's recovery from the anesthesia he vomited at least one quart of decomposed blood, justifying the belief that the emesis of November 9 also contained blood. I could not convince myself that the conditions in the hernia were responsible for so great an amount of bleeding. If so, why did not the blood appear macroscopically in the bowel movements rather than from the stomach? The bowels moved the day after operation by enema and the feces were of normal color. I still inclined toward an ulcerating carcinoma of stomach, possibly a small one on the posterior wall, as within a week vomiting occurred two and three times a day, vomitus almost always containing a small amount of blood. Patient lost his appetite, complained of pain in epigastrium and again in right iliac fossa. There was marked tenderness in these areas. The bowels continued to move daily, and blood, microscopically and then macroscopically appeared. There was no temperature at any time. The hernia wounds healed per primum.

Conditions rapidly grew worse and on December 9 I opened the abdomen above the umbilicus and found absolutely no signs of carcinoma. There was a long dense adhesion running from some point to left of median line above umbilicus to abdominal wall near gall-bladder—intestines adjacent were bluish-black, distended and showed small areas of necrosis—no constriction discoverable. These conditions explained the epigastric pain and tenderness. Adhesion was severed and incision closed.

An opening was then made through the right rectus muscle below the navel. The cause of bleeding and pain was at once evident. Some four or five feet of small bowel were densely adherent to each other, and to the walls of the pelvis on the right side, particularly about right femoral opening. That section of bowel which had been in the hernial sac was readily recognized as part of the bowel involved. There were numerous angulations and constrictions causing partial obstruction of the lumen. The blood supply to this area was so helplessly interfered with by the pathological changes that the bowel walls were thin, friable, and showed many spots of ulceration and necrosis. I endeavored to separate that part of the bowel adherent near the femoral ring, but despite my careful efforts a large hole was torn in the friable tissue which was found impossible to repair. I then resected the diseased bowel and united the proximal and distal ends by Murphy button. Patient died ten hours later.

In this case the findings in the first operation, though unexpected, presented no unusual features. Pathology seemed localized to a small loop of bowel and its surrounding omentum, neither of which were constricted at the femoral ring. Inflammatory changes seemed to account fully for the recurring

paroxysmal pains below the inguinal canal and for the tenderness in the inguinal mass. Nothing more appeared necessary than the severing of adhesions, the straightening out of the kink, and the replacement within the abdomen of the freed bowel—ordinary procedures. We fitted the whole matter into one of our type pigeon-holes, and did not recognize the significance of that feature which should have prevented its misplacement—the hemorrhage from the stomach.

In recent years increasing attention has been given to changes which not infrequently occur in the intra-abdominal loops joining herniated loops of intestine. These changes are nutritional in nature and are probably continuous with or dependent on alterations in the herniated bowel, produced by repeated inflammatory attacks. In these cases there is local peritonitis, of the chronic adhesive variety, within the abdomen in the vicinity of the hernial ring. There are produced organic unions between various coils, causing constrictions and angulations of the lumen, and seriously interfering with blood supply both in the coils and in the mesentery. Congestions, thromboses, ecchymoses and local anemias lead finally to bowel ulcerations and necroses with attendant bleeding or perforations.

Hemorrhage then, from the stomach or rectum in a patient who has had a hernia for some considerable period of time, with a history of several attacks of pain in the hernial tumefaction, no matter how slight, justifies the consideration of the hernia and its environs as of major importance in a differential analysis as to the source of the blood. I wish to emphasize this point because I do not find in text-books and other literature reference to the matter. During operation, if the conditions within the sac do not satisfy as to the origin of bleeding, and the adjacent intestines cannot readily be inspected through the hernia incision, an immediate exploratory celiotomy is indicated.

#### Discussion.

Dr. Stanley Stillman, San Francisco: I remember the case of a young man of about 20 years who was brought to the hospital with a small inguinal hernia the size of a hazel nut. He was brought in in the evening with severe pain and vomiting, but the hernia was so small and so recent that I thought spontaneous reduction would take place. He was put to bed with the foot of the bed raised and thighs flexed, and was given opium and belladonna and a warm compress over the hernia. The hernia was so tense that no attempt at taxis was made. The following morning, the conditions remaining the same, he was taken to the operating-room, but died on the operating-table before the operation was begun. Post-mortem, done almost immediately after death showed a small Littre's hernia of the small bowel, and within the bowel at this point a considerable quantity of clotted blood—evidently a recent hemorrhage. The quantity was not sufficient to have caused death, and the cause of the man's death I do not know. He ceased breathing without warning just as the ether inhaler was being adjusted over his face and could not be revived by artificial respiration. There were no lesions of the heart or lungs.

## THE SKIN AS INFLUENCED BY THE THYROID GLAND.\*

By HARRY E. ALDERSON, M. D., San Francisco.

That the thyroid gland has an important influence on metabolism is an accepted fact. The exact manner in which this influence is regulated is at present unknown, although there are more or less complex theories involving a consideration of possible relationships between the various ductless glands advanced by different investigators. The assumption that the thyroid performs its functions largely if not entirely by means of an internal secretion is supported by much data evolved through long series of careful clinical observations and animal experimentation. As the skin is greatly affected by the activities of the thyroid this phase of the question was chosen for the present discussion. This paper represents an attempt to present in a suggestive way, and as briefly as possible, a consideration of these effects so far as definitely known, and to discuss some phases which seem to offer possibilities in the therapy of some obstinate dermatologic conditions of obscure etiology. The writer has consulted many authors in gathering the facts to follow, and he humbly presents also a few personal observations.

There are certain well-known conditions in the skin associated with thyroid disturbances which it is necessary to review before discussing therapeutic possibilities. Since the early days of thyroid medication this gland substance has been used more or less empirically in dermatologic practice, but its indications gradually have become better known and consequently its intelligent use is more often followed by favorable results.

The cutaneous manifestations associated with thyroid deficiency or hypothyroidism will be considered first. In this condition the skin presents certain definite characteristics and from the evidence it appears that the deficiency in the thyroid secretion is directly responsible for this state of affairs. First in importance is the well known myxedema in which condition there is a generalized subcutaneous infiltration of a mucus-like substance; the skin is dry, rough and thickened. This mucoid edema is later replaced by overdevelopment of the connective tissue. The skin may be scaly and the hair which is dry and brittle, often falls out. The scalp is often dry and scaly. This generalized thickening of the skin is associated with great depression of the function of perspiration. The general nutrition of the skin and its appendages is below normal. The patients prefer hot weather and warm clothing. There may be localized thickening of the nose and lips and the face may be bloated. Rarely is increased pigmentation observed.

Ichthyosis has been seen in patients showing hypothyroidism, and that the latter condition may often be an underlying cause is strongly suggested by the fact that amelioration and cure have followed the giving of thyroid substance. A recent case reported by Mouriquand (Soc. de Med. de Lyon, Jan. 10, 1910, p. 288) is of interest in this connection: An

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infant fifteen months of age, showing a stupid face, large protruding lips, hypertrophied tongue, myxedematous skin and general cutaneous roughness; also obtuse sensibility and convulsive crises from time to time, presented ichthyosis under the axillae and on the thorax. Treatment by iodothylin and iodides brought about "very evident amelioration of the myxedema and the ichthyosis disappeared a little later."

Another condition of the skin presenting some features seen in myxedema is scleroderma. This is particularly true in the early stages of scleroderma, when the resemblance is often very apparent. In a series of 31 cases of the diffuse type gathered from the literature recently by Roques (*Ann. de Derm. et de Syph.*, July, 1910, p. 383) 22 showed clinical abnormalities of the thyroid and only eight showed clinically normal thyroids. Although the clinical appearance of the gland cannot always be taken as an index of the activity, still the favorable manner in which many of the cases respond to thyroid treatment would be sufficient to warrant the assumption that a deficiency of thyroid secretion is often, if not always an important factor in the etiology of scleroderma. Roques quotes very extensively from the literature and discusses a series of 67 cases of diffuse scleroderma in which 63.7 per cent. were favorably influenced by thyroid medication and 10 cases with circumscribed lesions in which 70 per cent. were favorably influenced.

When a condition the reverse of that just considered is present, that is, a state known as *hyperthyroidism*, the cutaneous blood vessels are more or less dilated and the phenomena are indicative of overactivity as evidenced by the erythema, urticaria and allied conditions that are usually present; the marked tendency to profuse general or local perspiration upon the least excitement (independent of external factors); the increased susceptibility to electrical stimulation; and the disturbed state of the vasomotors which may result in an exaggerated tendency to flush (which flushing may be confined to regions, or it may be unilateral). The entire skin contains an increased amount of blood and the patient feels warm so that he prefers light clothing and cold weather. This warm soft skin reacts very quickly to various external influences, probably because of the fact that there is an increased nervous excitability.

The diminished resistance to electricity already referred to may be due either to this nervous excitability or to the increased amount of salt containing solution in the skin. The occasional rare symptoms of localized vessel spasms that have been observed (local coldness; circumscribed paleness), numbness and paraesthesias, as well as the vasomotor relaxation phenomena may be attributed to the nerve disturbance. Where the nervous element is marked urticaria may be severe and persistent, and even angioneurotic edema may develop. Some of these phenomena, it is interesting to relate, appear in cases of arsenicism and iodism (both drugs being thyroid stimulants). Possibly in some cases they stimulate the gland to the point that the skin is rendered more susceptible to the untoward effects

of these drugs. Often there is very annoying pruritus which may be compared with that experienced in diabetes and various toxemias, jaundice and drug rashes. The areas that are normally pigmented may develop an increased amount of pigment. Occasionally this may be general in distribution and suggest Addison's disease, but very rarely is it so deep as in the latter. It may disappear at times and reappear in different localities. In rare instances the pigment may disappear in areas, resulting in the well known vitiligo,—the hair may also become white in circumscribed areas. The hair at times falls out, but it retains its normal texture and does not become coarse or dry as in myxedema.

In brief we often have in hyperthyroidism, skin changes which are practically the opposite of those seen in hypothyroidism, as would be expected.

It can be assumed reasonably that the main direct consequences of a deficiency of the thyroid secretion may be dryness of the skin and its appendages, scaliness and general depression of its functions. On the other hand, increased thyroid activity may be followed by dilatation and overfilling of the cutaneous blood and lymph vessels, overactivity of the sweat glands, irritability of the cutaneous nerves and general increased activity of the various processes in the skin. It is known from the work of Reid Hunt and others that a lack of thyroid substance may result in toxemia. When this occurs, the toxemia in turn may cause chronic urticaria, as suggested by Leopold-Levi and de Rothschild (*Compt. Rend. Soc. de Biol.*, Nov., 1906), and Ravitch (*Trans. Sixth Int. Derm. Cong.*, 1907, p. 410). This may be classed with the indirect effects of the thyroid secretion on the skin. R. L. Sutton and Kanoky (see *Amer. Journ. Med. Sci.*, Nov., 1910, p. 727), acting on this theory, administered thyroid substance in small doses (0.06 t. i. d.) to six patients having dermatitis herpetiformis, and they report marked improvement in five of the patients. The drug was given over a long period of time. This indirect cutaneous effect is the reverse of that ordinarily seen in hypothyroidism, and illustrates the fact that this question is complex, the evidence at times apparently contradictory and can lead one far astray in the uncertain field of speculation.

Practical application of the preceding observations: From a consideration of the foregoing and a review of the histopathology of some of the dermatoses, it would appear that by depressing the thyroid function in some cases and stimulating it in others (according to the indications), good results may be expected. That this can be demonstrated in clear cut conditions of hypothyroidism on the one hand and hyperthyroidism on the other, cannot be denied. In more or less remotely allied states, of course, this is not capable of demonstration; but there are some facts (to follow) which are strongly suggestive and furnish food for thoughtful speculation.

It would be well now to outline briefly the various known factors that modify the thyroid functions. The following are capable of stimulating the thyroid: thyroid extract, iodin and iodids, arsenic, salicylic acid, phosphorus, alcohol, pilocarpin,

tea, coffee, meat, sexual excitement, uterine disorders, pregnancy, and great nervous or emotional excitement (*Journ. A. M. A.*, Dec. 10, 1910, p. 2062).

From the thyroid there have been derived certain substances (thyreoglobulin and iodothyron) which, upon administration, stimulate the gland. *Thyreoglobulin* is found in the colloid substance and represents the active chemical principle of the gland. It contains a small amount of iodine. *Iodothyron* is an insoluble non-protein substance and contains practically all the iodine found in the gland. These two substances represent the whole therapeutic virtues of the thyroid as far as known (Cushny).

In many normal animals the giving of thyroid extract and iodothyron does not have any apparent effect unless the dosage be very large. At times, however, normal doses cause unpleasant symptoms. As is well known, persons afflicted with goitre will occasionally develop pronounced iodism upon the ingestion of small doses of the iodides. Thyroids deficient in iodine are much less effective therapeutically than when the iodine is up to the normal.

Among *depressants* of the thyroid are recognized the following: opium and its derivatives, bromides, chloral and hypnotics in general, glycerophosphates of lime and soda, calcium, milk and cereal diet, rest (and all that that implies), and freedom from sexual excitement.

The conditions which by reason of their known association with hypothyroidism, their histopathology and clinical characteristics seem often to call for thyroid stimulation (to which they frequently respond favorably) are: myxedema, scleroderma, ichthyosis, psoriasis, and some obscure dry eczemas (particularly after the age of sixty). The cure of myxedema by thyroid stimulation has been accomplished again and again. The cases quoted by Roques and by Mouriquand (already referred to) furnish ample proof of the efficacy of thyroid therapy in scleroderma and ichthyosis. Roques observes that this treatment to give the best results must be instituted early and must be long continued with periods of suspension. When the late atrophic phase of the disease has appeared, of course the prognosis is not so good, but even at this stage the sclerosis at times can be lessened some and the skin rendered more pliable. Naturally the greater the sclerosis the less the chances of ameliorating the condition. It is not claimed that thyroid medication can resolve the solid sclerosis seen in the terminal stages of scleroderma. Roques explains the failures as being due to the fact that other etiological factors than hypothyroidism may have been operative and that thyroid medication was begun too late. Extracts of other ductless glands have been tried and the suprarenal has been beneficial in some cases—but there is no treatment that has brought about as large a percentage of favorable results as the thyroid medication has appeared to have accomplished.

Thyroid administration in the treatment of psoriasis is recommended and good results reported by many authors. From the nature of the skin changes in this disease it would seem to be indicated. The writer recently has had a case of psoriasis respond favorably to thyroid medication and at the

present time (six months since the cessation of the treatment) there has not been a recurrence. However, because of the well-known tendency of the disease, a relapse is confidently expected sometime, and when it occurs, thyroid will be given carefully as before. It is interesting to observe here that potassium iodid, arsenic and the salicylates, which are given frequently, and with success, in psoriasis, are all thyroid stimulants. Can it be that their good effects are due in part to this latter property?

Thyroid has been strongly recommended in lupus vulgaris by Crocker and several other English authorities. It is recommended that it be given persistently for a long period after first surgically removing as much of the lupus tissue as possible. Hardaway and Grindon observe that the substance is much better borne and more effective when given in combination with arsenic.

Cushny explains the occasional beneficial effect of thyroid in long-standing syphilis as possibly being due to the iodine contained in the substance being in a peculiar combination in which the iodine "may be more easily made use of by the economy than the ordinary organic preparations."

The thyroid gland diminishes in activity and atrophies after the age of sixty, and so it would appear that in the period of senescence various dermatological affections that often prove to be very obstinate and troublesome may be favorably affected by thyroid treatment. The writer now has a patient under his care whose trouble seemed to be due to this hypothyroidism. The history of the case is, briefly, as follows:

Mrs. B. (Old People's Home), widow, age 73. She had the typical senile skin with dryness, very marked and all the appearances suggestive of thyroid deficiency (which one would expect at her age). She had had severe pruritus senilis for the past few weeks. Various external applications which are usually beneficial in this condition were tried, but with absolutely no success. She was then given a trial of thyroid gland extract without much hope of success. It was given in daily doses of 0.36 gms. and at the same time the patient was carefully watched by the nurse for unfavorable symptoms (which never appeared). In one week the patient's condition began to improve. By the end of three weeks a wonderful transformation had taken place,—her skin had become warmer, softer and it had lost all of its dryness, and the pruritus, as a consequence, ceased entirely. The thyroid medication was then discontinued. At the present time (two months since the cessation of the treatment) there has been no recurrence even to the slightest extent. The patient looks better in every way, is infinitely more cheerful and has a good appetite, which formerly was entirely lacking. Before the course she was exceedingly morose, cranky and contrary, so that it was difficult to do anything with her. Now, one would hardly know her, the change for the better has been so marked. It can be assumed safely that thyroid medication should have the credit here.

It has been demonstrated that there are certain definite conditions (in particular myxedema and scleroderma) associated with hypothyroidism, and further that thyroid treatment brings about amelioration or cure in a large percentage of the cases. On the other hand, while in general the skin changes associated with the reverse state (hyperthyroidism) are known there are no such clearly defined clinical entities as seen in hypothyroidism. Bearing in mind



the tendency toward overactivity, the hyperemia, vasomotor disturbances (erythema-urticaria group), increased activity of the sweat glands, excitability of the cutaneous nerves and increased pigmentation, one can find indications for the prescribing of thyroid depressants in various obscure cases that are rebellious to the ordinary measures. When there are other definite symptoms of hyperthyroidism present, such as goitre, tachycardia, etc., of course the indications are very plain.

It is of interest to note that there are dermatological states pathologically similar to the hyperthyroidic skin that respond favorably to drugs that are known to be thyroid depressants, and vice versa. Although calcium salts which are at times successfully given in the urticarias and erythema have been shown to produce this effect in part by increasing the coagulability of the blood, still it is possible that their inhibitory influence over the thyroid function may also be a factor in some of the cases. On the other hand, as was noted in discussing psoriasis, the most effective drugs in the treatment of that condition are also thyroid stimulants.

Before closing, it would be well to note that the thyroid secretion is capable of profoundly affecting the system and at times may cause alarming symptoms. On account of the well-known dangers attending its use at times, it should never be given in a routine manner, the dosage should be carefully regulated and the patient's tolerance vary carefully determined.

In closing, it may be asserted that inasmuch as the thyroid, by its increased activity on the one hand, or its deficient functioning on the other, can markedly affect metabolism in general, and these effects can very materially influence conditions in the skin, the question is worthy of more attention and investigation by those interested in dermatology.

#### Discussion.

Dr. E. D. Chipman, San Francisco: The one lesson to me in this very excellent paper is the fact that it is a contribution to the etiology of skin diseases. When we read the text books on skin diseases we become more and more insurgent and get very tired of reading in connection with the etiology that it is unknown and in connection with the treatment to find the causes and remove them. So that anything that gives us so much tangible material concerning etiology is a distinct contribution.

Dr. G. D. Culver, San Francisco: One of the conditions which is possibly influenced by internal secretions and that we find very difficult to treat is chloasma. Sometimes it is quite disfiguring and almost unyielding to treatment. We have found recently that suprarenal extract is very beneficial in these cases.

Dr. Harry E. Alderson, San Francisco: I merely wish to state that my paper was strictly limited to a consideration of the thyroid because more is known about that gland than the others. In reply to the question regarding the suprarenal, I wish to say that there is really very little definitely known concerning its influence and the influence of the other glands of its class on the skin. There are various more or less conflicting theories, however. The suprarenal has been used empirically for widely different cutaneous conditions but it has no place in scientific dermatological therapeutics. My original intention was to discuss internal secretions in general but I soon found myself getting

into deep water, for it led to a consideration of the hormone theory and the complex interrelationships of the various ductless glands and so much that was speculative and it would have prolonged the discussion indefinitely. As it is it has been very difficult to keep the paper within due bounds so as to be able to finish within the time limit. The thyroid alone was chosen for this discussion because a great deal is definitely known concerning its influence on the skin. By keeping in mind these known facts and considering the histopathological changes seen in the skin in certain conditions one can often gain valuable assistance in the treatment of obscure dermatological states.

### THE DIAGNOSIS AND SURGICAL TREATMENT OF TUBERCULOSIS OF THE KIDNEY, WITH REPORT OF CASES.

By E. C. MOORE, M. D., Los Angeles.

Tuberculosis of the kidney in the majority of cases is to be considered a surgical disease, and when localized in one kidney should be treated surgically, as is localized tuberculosis elsewhere in the body.

Morgagni in 1707 was the first to describe tuberculosis of the kidney, and Jno. Howship in 1823 reported two cases of tuberculosis of the kidney and bladder in a boy and woman respectively.

Lancereaux in 1871 reported the first case of primary unilateral tuberculosis of the kidney, and Babes was the first to discover tubercle bacilli in the urine.

In 1884, Henry Morris described tuberculosis of the kidney under the titles of tuberculosis and scrofulous disease of the kidney, giving a good clinical picture of the disease, and stated that the treatment consisted of relieving the pain and improving the general condition of the patient.

**PATHOLOGY.**—Renal tuberculosis is a disease of early and middle life, and is most common between the ages of twenty and forty. Walker in his list of 373 cases, gives the greatest number between 20 and 30 and the next greatest between 30 and 40. Tilden Brown gives as extremes of age 2½ months and 74 years.

Statistics vary as to the greater frequency in males or females, but the consensus of opinion seems to be that females are more often affected than males, while the right kidney is more frequently affected than the left.

Renal tuberculosis is practically always unilateral in the beginning and may be primary in the kidney; this, however, is very rare, for according to Albarran there are only five cases on record in which the autopsy showed that only the kidney was affected. It is, as a rule, secondary to a focus some place in the body, and in the majority of instances follows infection of the lungs or bones.

The infections may take place in one of three ways:

First—By the blood stream and giving rise to the so-called hematogenous type. This is by far the most frequent mode of infection, and occurs in over 90% of the cases. The bacilli are cast into the blood stream from a tubercular infection of the lungs, or elsewhere, and lodge at a point of least

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resistance, thus causing a local lesion, the location in the kidney most prone to such infection being the glomerulus, this being the point where circulation is least active and where nutrition disturbances are apt to occur.

Second—By upward extension through the urinary passages, and giving rise to the so-called ascending or urogenetic type of infection.

Up to the past ten or fifteen years this has been the accepted mode of infection of the kidney. This conception of infection of the kidney seems to have been based upon theoretical grounds rather than upon actual observation.

Careful dissections of the ureter show that the ureteral orifice is so constructed that under normal conditions a return flow of urine even under pressure is impossible. Attempts have been made to force colored fluids from the bladder up the ureters without success. Bungarten in his experiments was able to produce tuberculosis of the urethra and bladder, following the injection of T. B. bacilli into the urethra, but never the ureter or the kidney. He also injected T. B. bacilli into the vas and produced T. B. of the prostate, but never T. B. of the testicle. He therefore reasoned that the germs always float down the current and never up stream. Pathological and clinical evidence is also lacking to show that ascending infection takes place. There are many specimens in which the pelvis of the kidney and upper portion of the ureter show T. B., but no cases showing a primary tuberculosis of the bladder with an infected lower portion of the ureter and not the kidney. There may be some exceptions to these statements. A tuberculosis may involve the bladder and ureter by contiguity and cause stricture, and then infection of the kidney and ureter will rapidly follow, this having been proved by Samson.

Third type. By extension from neighboring organs. This is a very rare occurrence.

**PATHOLOGY.**—There are two varieties of tuberculosis of the kidney. First, the acute or miliary T. B., with which we are not interested, and second, the chronic tubercular type. This may be divided into three varieties:

(1) Caseous type with cavity formation. This type usually starts with the formation of a small grayish nodule in the lower pole of the kidney. It gradually enlarges and becomes caseous; other nodules form near the original focus, and these break down and cavities are created which may completely riddle the entire kidney with small septa of kidney structure intervening, which also shows extensive tubercular infection. The kidneys may be enlarged and have a sense of fluctuation. The capsule may be adherent to the pararenal tissue. On section the kidneys show irregular cavities filled with this broken down material, or some of them empty, if they communicate with the ureter. Calcareous deposits are frequently met with in these cavities. This form often has associated with it inflammation of the paranephric and perinephric tissue.

Second form. Is characterized by tubercular ulcerations of the apices of the papillae. This type usually shows early and rather profuse hemorrhage.

Third. Nodular type. The kidney is studded with whitish nodules from the size of a pin to a split pea, and do not have any tendency to break down. On stripping the capsule, the nodule projects from the surface of the kidney in little roundish elevations.

**SYMPTOMS.**—The symptoms may be divided into constitutional and local. The constitutional symptoms come on gradually, and consist of more or less malaise, irritability, possibly a sense of feeling warm in the afternoon, loss of appetite and weight. These symptoms become more marked as the disease progresses. Night sweats and a regular afternoon temperature develop, the temperature ranging from normal or sub-normal in the morning to  $101^{\circ}$ - $103^{\circ}$  in the afternoon, this depending somewhat as to whether a mixed infection may be present. The local symptoms consist of polyuria, pyuria, pain, irritability of bladder, hematuria and remission of all these symptoms.

Probably the symptoms that most frequently cause the patient to seek advice is the polyuria and the irritability of the bladder. These two symptoms are the most constant in a beginning kidney tuberculosis. The frequency may be present both day and night, and of such a grade as to seriously interfere with the patient's rest. Frequently they arise ten and twelve times. This frequency as a rule early in the disease is reflex in origin, but as the disease progresses and the bladder becomes infected and ulcerated, the number of voidings increase and become extremely painful. Cases, however, do occur where the voidings are painful and frequent, yet the bladder is perfectly normal in appearance.

Polyuria if present in the early stages may be intermittent or constant. The reaction of the urine is usually acid, and albumen present but in small amounts.

Pyuria in the early stages is usually microscopic, but is usually constant. It may be intermittent, and during the intervals the urine be free. This is due to either the ureter becoming blocked, and the urine secreted coming from the healthy kidney, or while the tuberculosis is still confined to the parenchyma of the kidney, ulceration takes place and the small abscesses discharge into the pelvis of the kidney.

Hematuria is usually present in various amounts. It may be microscopic or macroscopic. Blood in the urine, when in any quantity, is usually associated with ulceration of the apices of the pyramids.

The kidney early in the disease as a rule is not greatly enlarged, and it is not until later that much enlargement is to be expected; and as a rule when much enlargement is present it is due to ureteral obstruction or perinephritic inflammation or abscess.

Remission of all the symptoms is very characteristic of tubercular infection in the kidney. The pus, blood, frequency and pain may entirely disappear, the patient gain in weight and think himself well. This lasts a variable length of time, but sooner or later the symptoms will recur.

Pain, as a rule, is not severe in the kidney. When present it may consist of a dull aching in the loin and down the course of the ureter. Oftentimes a weakness or heaviness is the only complaint.



Again the pain may occur in paroxysms and resemble typical kidney colic. This when present is due to the occluding of the ureter with either tubercular debris discharged into the ureter from a tubercular abscess or to blood clots. Occasionally pain may be referred to the opposite kidney.

**DIAGNOSIS.**—The diagnosis of tuberculosis of the kidney consists of not only proving that the tuberculosis is present in the kidney, but it must also include a knowledge of whether one or both kidneys are involved.

Second: The functional capacity of each kidney must be estimated.

Third: Whether the bladder is involved, and how great this is.

Fourth: The finding of tuberculosis elsewhere in the body, and especially the genital organs.

Primary tuberculosis of the bladder is practically unknown. The infection occurs either secondarily to infection from the prostate, seminal vesicles, epididymis, or from a descending infection from the kidney. Excluding the prostate, seminal vesicles and epididymis as the source of the infection of the bladder, we must look to the kidney for the original focus.

Cystoscopic examinations of the bladder and ureteral catheterizations are absolutely essential to make a diagnosis of kidney tuberculosis. The cystoscopic picture usually shows a redness and edema about the orifice of the ureter of the involved kidney, provided the case is seen early. In the more advanced cases ulceration may be present, the ureter retracted and have the appearance of being punched out, or the so-called golf hole ureter.

The tubercular ulcerations seen about the ureteral orifice have the same characteristics as T. B. ulcerations elsewhere in mucous membranes. The normal contracting power of the ureter is lost in T. B. of the kidney, and as a result the normal spurting is wanting, and the urine usually trickles from the meatus. Attempts have been made to estimate the extent of kidney involvement by the changes in the uterus and the amount of inflammation and ulceration present about the ureteral orifices. This I do not think possible.

Cloudy urine will be seen flowing from the ureter on the affected side, the normal contractions of the ureter will be wanting, while the healthy side will show a normal contracting ureter with the urine clear. I have made it a practice to catheterize both kidneys and collect the urine from both kidneys in sufficient quantity to get the specific gravity and amount of urea.

Microscopic examination of catheter urine shows pus and blood, usually traumatic, and T. B. bacilli on the affected side, while the other kidney may show a normal urine with a few red cells, which I consider due to the introduction of the catheter. If unable to find bacilli in the urine, I frequently inject a small amount of tuberculin and catheterize following or during the reaction. A diagnosis of tuberculosis of the kidney should not be made upon the finding of an acid fast bacillus in the catheterized specimen alone, as it is a well recognized fact that a healthy kidney will eliminate bacteria, but if,

in addition to the bacilli, inflammatory products are present, then tuberculosis is probable.

Twenty-four hour specimens of urine must always be insisted upon, and by a comparison of their specific gravity and urea, as compared with the same findings in the catheterized specimens, sufficient knowledge is obtained as to how much surgery the patient can stand. The injection of phlorizin, indigo, carmine and the cryoscopic examination of the blood are not of much value. Of the three, however, the cryoscopic examination gives the most information.

**TREATMENT.**—The treatment of tuberculosis of the kidney depends upon whether one or both kidneys are involved. It has been previously stated in this paper that in over 90 per cent of the cases the infection in the beginning is limited to one kidney, and that the infection is hematogenous in origin.

The only operation here to be considered is nephrectomy. Nephrotomy is only palliative, and should only be performed where the condition of the patient will not stand a nephrectomy. Nephrectomy, however, should be done as soon as the patient's condition will justify it. Resections of the kidney for tuberculosis are absolutely non-surgical. If both kidneys are infected, the treatment must be palliative, and should consist of nephrotomy and drainage, if abscesses are present, together with fresh air and food.

**SURGICAL TECHNIC.**—Patients are placed lying on their faces, with the body curved so that the convexity of curve is toward the diseased side. An oblique incision, starting from the intercostal vertebral angle downward and outward to the crest of the ilium, is the one I usually make. This incision lies parallel with the vessels and nerves, as it is essential that they should remain intact. The kidney is freed from the surrounding structures, the blood vessels doubly ligated with No. 2 catgut. It was formerly thought that the entire ureter should be removed, but more recent work has proven this not necessary. We usually tie the ureter separately after having previously injected 10 c.c. of carbolic acid into the lumen. This is usually sufficient to destroy the mucosa of the entire ureter.

I have never seen any ill effects in the bladder following this procedure. The stump of the ureter is fastened in the lower angle of the wound, where it may be easily got at should the necessity arise. If in freeing the kidney there is much soiling of the wound with infected material, we have always left the wound opened and packed with iodoform gauze and permitting the wound to granulate. The patients are given tuberculin injections following the operation, the tuberculin used being the bacillin emulsion. If mixed infection is present, autogenous vaccines are made and also used.

**Cases.**—Mrs. A. M., Act. 44. July 19, 1906.

Cystitis started one year ago, has been getting up 3—4 times at night, until 6 months ago. Mict. painful and urine cloudy. Has noticed blood urine several times. Past 6 months increased frequency 6—8 times at night with severe pain, end of voiding. Urine always cloudy. Three months ago began to have dull aching pain, right loin, worse when on feet much, occasionally night sweats, and says feels warm in afternoon.

Physical Examination.—Enlarged cervical and inguinal glands, tenderness region right kidney, which is somewhat enlarged. Urine Sp. Gr. 1022 acid, slight albumen, much pus. 24 hr. 1600 c.c. No T. B.

Cystoscopic Examination.—Bladder capacity, about 200 c.c. Right ureter retracted; for space of 1 c.m. about orifice, red with ulceration just below orifice, balance of bladder normal. Cloudy urine from right orifice. Left ureter normal, contracting and clear urine.

Right catheter specimen. Left catheter specimen.  
5 cc. in about 10 min. 20 c.c. same time.  
Acid, albumen. Acid.  
Pus, T. B. bacilli. Clear.  
Urea, 1 gram to litre. Urea, 22 grams to litre.  
Diagnosis.—T. B. Right Kidney. Operation nephrectomy. Recovery.

April 1st, 1911. Says gained 10 lbs. Voids urine about 1—2 times at night. No pain and urine clear.  
2nd.—Mrs. W. W., Aet. 32. Jan. 1, 1911.

Complains of increased freq. pain in left loin. Started 6 yrs. ago. With attacks, not bad until 2½ yrs. ago. Since then more or less constant symptoms; has to get up 5—8 times at night, occasionally slight blood. 2 yrs. ago cystoscoped by local physician, and told that she had tuberculosis of the bladder, however was unable to find T. B. bacilli in the urine, or catheterize ureters. Since then constant symptoms—delivered full term child 2 months ago. From time 6 months pregnant, has had afternoon temp. high as 104.

Cystoscopic Examination.—Capacity 300 c.c. Right orifice 20 c.c. in ten minutes, clear, slight retraction, posterior margin of ureteral orifice. No edema or ulcerations. Left ureter in deep ulceration and retraction, so great that it produced a ridge or bar in bladder, extending from ureteral orifice toward the urethra, and to its left. No flow of urine, pus very thick from ureteral catheter.

Right urine. Left urine.  
1022. Pus.  
Acid. T. B. bacilli.  
Albumen, trace.  
No pus.  
24 hr. urine 1600 c.c. Sp. Gr. 1020 Acid, pus—colon bacilli.

Urine mixed infection colon bacilli.  
Recovery.  
Diagnosis.—T. B. Left Kidney.  
Operation.—Intra capsular nephrectomy. Ureter much enlarged and thickened. Wound packed with iodoform gauze.

Since operation on Tuberculin and colon vaccine. Gained 12 lbs. Voids urine 1—3 times at night, still some pus. No pain. No temperature.

3rd.—Mrs. F. B. C., Aet. 35. March 10, 1910.  
Complains bladder irritability 1½ yrs. by spells 2—3 weeks. Says dull pain left kidney since 2 yrs. 1½ yrs. ago diagnosed. Stone pelvis left kidney in New York. Chills, fever, sweats since Dec. III. 24 hr. urine 1350 c.c. Acid. Albumen trace pus. T. B. Bacilli.

Cystoscopic Examination.—Bladder redness about trigone. Left ureter, retracted, ulcerated. Cloudy urine. Right ureter. Normal contracting, spurting clear urine.

Catheterized specimens.  
Right ureter. Left ureter.  
17 c.c. in 15 min. 6 c.c. in 15 min.  
1016. 1008.  
Acid. Acid.  
Albumen, trace. Pus. T. B. Bacilli.  
Urea, 18 grms. to litre. Urea, 3 grms. to litre.  
Diagnosis.—T. B. Left kidney.

In April, '09, says had pelvic abscess, left side. Drained per vagina. Had fistula from abscess for over 9 months before closing.

Op. Nephrectomy—Placed on tuberculin and colon bacilli vaccine for 3 months. Bladder irritability still present. Gained 14 lbs. in weight. Still has pus in urine.

April 6, 1911.—Five months ago supra-pubic cystotomy, for bladder symptoms. Since then improvement, cystotomy wound closed 2 months ago, but bladder irritability and pus still present.

4th.—Mrs. W. E. L., Aet. 42. Oct. 25, 1909.  
Attacks pain left hypogastric region, radiating up under left costal border, come every 3—4 weeks, last from 1—8 hrs. accompanied with nausea and chilly sensations. Morphine for pain. During the attack passes small amount of cloudy urine, with severe burning pain at the end of voidings, never noticed blood. Between attacks normal freq. but urine always cloudy. No night sweats, no fever. Had 1st attack 1½ yrs. ago. Tenderness in left loin, and along course left ureter. Kidneys not palpable. Slight thickening and tenderness along left ureter, per vag. X-ray neg.

24 hr. urine 1650 c.c. SP. Gr. 1020. Albumen, trace. Pus present. No T. B. bacilli.

Cystoscopic Examination.—Normal contracting right ureter, spurting clear urine. Left ureter retracted edematous, cloudy urine.

Catheterized specimens.  
Right ureter. Left ureter.  
24 c.c. in 10 min. 12 c.c. in 10 min.  
Sp. gr. 1024. 1013.  
Urea, 19 grms. to litre. Acid.  
Microscopic, neg. Albumen. T. B. bacilli neg.  
Urea, 8 grms. to litre.

Diagnosis.—Probable T. B. left kidney.  
Operation.—Left oblique lumbar incision, capsule adherent lower pole. Kidney split open, showing small area degeneration, in one of the pyramids in the lower pole of kidney. Resection of lower one-third of kidney. Wound closed with small rubber tube drains. Death on the 14th day. No autopsy.  
Pathological report.—T. B. kidney.

### Discussion.

Dr. M. Krotoszyner, San Francisco: A careful investigation into the pathology, symptomatology and post-operative course of my own material of renal and vesical tuberculosis has led to the following conclusions: Infection of the bladder is almost always due to that of the kidney. Unilateral renal tuberculosis constitutes in most instances a primary or hematogenous infection, but may occasionally occur as a sequel of another tubercular focus of the organism. Where tuberculosis of the genital apparatus is co-existing with that of the bladder, one is justified in assuming that the bladder infection is due to renal tuberculosis. Renal tuberculosis is in most instances a unilateral affair and occurs more frequently with the female sex. In spite of absence of subjective symptoms and even in such cases where no untoward objective findings can be ascertained, an early positive recognition of the renal lesion is possible by cystoscopy, ureteral catheterization and microscopic findings of tub. bac. in one of the catheterized urine portions, which always should be corroborated by animal inoculation. The best and quickest cure of vesical tuberculosis consists in removal of the diseased kidney. The diagnosis of chronic inflammation of the bladder, chronic or rebellious cystitis, is in most instances made for want of knowledge of the real underlying etiological factor, viz., renal tuberculosis. A chronic gonorrhea may occasionally be a predisposing factor. Persistent cloudy urine, slight but persistent bladder disturbances, slight but often recurrent pains in renal region, general malaise from unknown cause should give rise to suspecting a beginning renal tuberculosis. Such patients ought to be subjected to careful hospital observation, where by repeated search for tub. bac. in urine, by application of chromo-cystoscopy and the various tests for determination of renal function and the animal inoculation test, a positive topical diagnosis can be readily established. I have personally no experience with urinary segregators or separators, the application of which is considered as an unreliable method by the



majority of experienced urologists, but could always arrive at a satisfactory diagnosis by means of the more accurate ureter catheter. Danger of infecting the healthy kidney by the ureter catheter is practically so small that it does not figure seriously as being contraindicated in renal tuberculosis. As soon as an early diagnosis is established, the operative removal of the diseased kidney should be carried out. In case of both kidneys being diseased and where indications for removal of the more diseased kidney are imperative, this can be accomplished with occasionally excellent results. Others (Kummell, etc.) advise a primary nephrotomy on one side with removal of the tubercular and suppurative foci, and nephrectomy in a second sitting as soon as the function of the remaining organ has improved. In these cases the judicious application of the various tests for relative and absolute renal function will permit of establishing strict indications for fixing the time and extension of operative procedures. Where cystoscopy and ureteral catheterization are impossible, the kidney should be first exposed whose ureter could be palpated as being thickened and indurated. In one such case I found on that side a renal pus-sac, which was easily enucleated. Others (Israel, Kummell, etc.) advise bilateral nephrotomy in one sitting.

The newer diagnostic methods have reduced the mortality for operations on tubercular kidneys to such an extent, that nephrectomy for this affection to-day is considered a comparatively safe procedure. Kummell reports 4 deaths among 106 nephrectomies, as against 3 deaths among 12 nephrectomies in pre-cystoscopic times. Spontaneous cures in renal tuberculosis are possible, but as a rule coincident with an irreparable or complete destruction of the organ. I have seen such a case in which one kidney was found to constitute an inert pus-sac, which did not drain into the bladder, as the ureter on that side was obliterated and had atrophied to a fibrous, thin, thread-like string. The other kidney was the seat of active tuberculosis and the patient succumbed to his inevitable renal insufficiency. In young individuals, especially children, favorable results may be obtained by the judicious application of tuberculin. Its technic and dosage must be in the hands of tuberculin experts. I have seen one case, a boy of 11, in which the careful and prolonged tuberculin treatment failed. The various functional tests proved the functional inferiority of the left organ, and its removal was followed by complete recovery of the young patient. After careful perusal of all publications on the subject of tuberculin treatment, we cannot concede that a positive objective proof of a real cure by tuberculin has been established.

Tuberculin or any other expectant regime can only be considered rational for incipient cases and the key to the situation, as regards prevention of nephrectomy for renal tuberculosis, lies in the hands of the general practitioner or family physician who sees those cases first-hand.

There are symptoms present which manifest themselves early in tuberculosis of the urinary tract and which will not escape the careful observer who is on the look out and is able to draw from the patient reliable statements. These are: Sensations of more or less intense pains in either side of the abdomen, or the crest of the os ilei, the hip, the femur, or the os sacrum. Characteristic sensations of coldness in either lumbar region, or in one-half of the bladder or one side of the urethra or penis, or one labium or one side of the vagina. These sensations are either connected with or independent from the act of urination, but they always correspond to the side of renal involvement. Characteristic paroxysms of renal tenesmus with voiding of a clear, watery urine, which is expelled in drops with occasional chills and sweating.

In regard to the determination of kidney function I do not, as Dr. Moore does, depend upon one test, but prefer to apply several of the well-known functional tests. I consider the indigo-carmin

phloridzin tests, contrary to Dr. Moore's opinion, very valuable. I am glad that Dr. Moore laid stress upon the fact that primary tuberculosis of the bladder is practically an unknown entity, notwithstanding the views which lately are held by Cabot and other reliable authorities.

Dr. F. M. Pottenger, Los Angeles: Regarding the treatment of renal tuberculosis, there is something of extreme importance to be said about the diagnosis by ureteral catheterization; a failure to find tubercle bacilli by ureteral catheterization does not necessarily mean the absence of disease in the corresponding kidney. Tuberculosis can exist for months without producing ulceration and casting off bacilli. In the larynx, where we have an opportunity for continuous observation, we find these tuberculous infiltrations existing month after month without ulceration occurring. The same is true in the lung and all other organs which are affected by this disease. The tuberculous foci are found exceedingly often in the kidneys of patients dying of tuberculosis, as shown by the studies of Walsh.

In regard to the use of tuberculin, I believe that every case of tuberculosis of the kidney should be given a trial with tuberculin treatment before operative procedure is resorted to, unless the diagnosis be made after urgent symptoms have appeared. I believe, however, that a surgeon should be called in consultation so that the case might be watched carefully, and, if urgent symptoms should appear, the kidney should be removed at once. I deem it very important to save the kidney if possible, therefore I would urge that the patient be given the benefit of a trial of tuberculin wherever possible. I furthermore believe that if the kidney is removed, tuberculin should be used afterwards.

During the past fifteen years I have arrived at a certain method of administering tuberculin, by which I am able to avoid many of the difficulties usually encountered in its administration. I begin with a small dose and then increase my doses quite rapidly: without too great an interval between them. For example, I usually allow one day to intervene between my first and second doses, probably two days between my second and third and two or three days between my third and fourth. My second dose is from twice to ten times my first dose. My third dose is from twice to ten times my second dose, and my fourth dose from twice to ten times my third dose, the increase depending on the condition of the patient and the preparation which I use.

The advantage of this method is that it rapidly immunizes the patient to the toxin. It is very rarely that hypersusceptibility appears in patients who are treated in this way. Where one begins with small doses and repeats them at long intervals, however, as is so often done, the patient is frequently sensitized and reaches a state where the smallest dose produces a reaction. There is a great deal of fear and misapprehension regarding large doses of tuberculin. The fear should not be directly against large doses but improper dosage. More severe reactions will follow small doses infrequently administered than larger doses given properly.

Dr. G. L. Eaton, San Francisco: I was very much interested in the reading of this paper. There are one or two points with which I disagree. One is the opening of the pleura in operation upon the kidney where it becomes necessary to remove the lower rib. You are subjecting your patient to secondary infection. The second point is in regard to the diagnostic value of the ureteral catheterization in infection of the kidney. We should be exceedingly careful and take our symptoms from a diagnostic point of view, take the urine from the ureter and inject the guinea pig, examine it also microscopically and follow with the tuberculin test and determine in our minds whether the infection is human infection or bovine. If it proves to be the bovine type, then tuberculin should be used of the bovine type. In conjunction with your tuberculin it is necessary to make an autogenous vaccine because in all cases

of tuberculosis of the kidney we have many organisms. I have been using lately the autogenous vaccine made repeatedly—every two or three days—so as to get a fresh culture, and I find that autogenous vaccines in conjunction with the tuberculin is very valuable. In regard to the surgical aspect of the question, I have seen several cases lately where the stump of the ureter has been left in mass. I believe that when a man removes the kidney he should remove the ureter with it. In many cases you have an infected pelvis and ureter down to the proximal constriction, and in the course of a month or six weeks you will have a second infection of the bladder and an ascending tuberculosis to the other kidney.

Dr. M. Rothschild, San Francisco: This is a most interesting and valuable paper for the general practitioner, and I regret that Dr. Krotoszyner did not have more time for his discussion of the subject. While I personally take the standpoint that early operation in tuberculosis of the kidney is advisable, and the safest mode of procedure, if it can be ascertained with certainty that the other kidney is functioning normally, I must admit that at times remarkable results are obtained with the tuberculin treatment. For instance, I remember a case which was seen and later operated on by Dr. Stillman. The patient, a fine, healthy looking specimen of a man, had a tuberculous left kidney and a tuberculous bladder. The sickness began with the symptoms mentioned by the former speakers. Dr. Stillman opened the bladder by suprapubic incision to relieve the man's severe suffering during the frequent urinations. Later, in addition to the tuberculous left kidney and bladder, he developed tuberculosis of the peritoneum, and about three months afterwards, tuberculosis of the lung, with pleurisy, and exudation into the pleural cavity. When I first saw him he had a temperature of 103°, coughed and expectorated a great deal, had night sweats, and weighed 145-150 pounds. He appeared to be a very sick man. I first advised the removal of the ascites by laparotomy, and then began the tuberculin treatment. The patient improved remarkably, so much so that he refused to be operated upon when I advised the removal of the diseased kidney. I therefore continued the tuberculin treatment, and in about a year the patient gained about 90 pounds. At the present time (about four years after the operation by Dr. Stillman) he seems to be in splendid health, urinates every three or four hours, and stands up well under rather hard work. I have under treatment another case, which was examined by Dr. Ed McConnell. The patient is an engineer. He has a tuberculosis of the bladder secondary to a tuberculous left kidney. He also refused to be operated upon, and I therefore advised the tuberculin treatment. A good effect under this treatment is evident, and the patient has improved so much that he will not even discuss the removal of the kidney. In both of these cases I advised the operation in spite of the apparent improvement under tuberculin, because I believe that it is nearly impossible to effect a permanent cure of a tuberculous bladder if the tuberculous kidney, which can usually be regarded as a primary focus of the infection, is not removed. On the other hand, I should be reluctant to advise the removal of one kidney, even if the other did not show symptoms of insufficiency, if there is another tuberculous focus present, either in the lung or elsewhere. There is a danger of the remaining kidney becoming infected from this focus. Under these conditions, I personally believe that the patient is better off with both kidneys, even if one is diseased.

Dr. Stanley Stillman, San Francisco: The point with regard to primary hematuria or marked hematuria as a primary symptom of tuberculosis of the kidney has not been brought forth except in the case spoken of by Dr. Rothchild. That case was brought to me by Dr. Downing of Suisun because of bladder symptoms, the urine when passed being bright red in color, and, on settling, the bloody sediment occupying two-thirds of the vessel containing it. The

patient was a young man, apparently in perfect health and strength, nearly six feet tall, and weighing nearly 200 pounds. The only symptom he complained of was frequent passage of bloody urine, which had come on very recently and with increasing severity. Repeated microscopic examinations failed to show tubercle bacilli and two guinea pigs were inoculated. A cystoscopic examination was made by Dr. Rigdon with great difficulty because of hemorrhage coloring the water that was injected into the bladder. Nevertheless, we both thought we saw what appeared to be a large papilloma situated in the anterior wall of the bladder. Because of these findings a superpubic cystotomy was done, but no papilloma was found; the entire mucous membrane of the bladder being uniformly granular and dark red in color. Because of the intense inflammation of the bladder wall, the bladder was drained for some weeks, at the end of which time the guinea pigs were killed, and both showed general tuberculosis. At no time, however, were bacilli found in the urine. The wife was informed of the facts of the case, but at her request the information was kept from her husband. I left for Europe at this time, and made arrangements with Dr. Oliver to give him tuberculin treatment, but after my departure he left the hospital, and later passed into the hands of Dr. Rothchild. I have seen also a young woman with severe hematuria, which was the only symptom of what proved to be also tuberculosis of the kidney, without accompanying polyuria, and without the other primary symptoms one looks for.

Dr. A. S. Lobingier, Los Angeles: Rovsing of Copenhagen, suggested in a monograph in the *Archiv für Chirurgie* several years ago on Tuberculosis of the Kidney, the advisability of taking up the ureter five or six centimeters from the kidney, opening it and passing a catheter into the pelvis of the kidney in those cases which could not be catheterized via vesical on account of occlusion of the ureteral opening in the bladder from ulceration. He had done this procedure in a number of instances with excellent results, and it has appealed to me as a measure of greatest value in cases where the invasion of the kidney is suspected but where the constriction of the vesical orifice prevents catheterization in the usual way.

Dr. T. W. Huntington, S. F.: I wish to emphasize the fact brought out by the reader that early bacteriological research in suspected cases of renal tuberculosis often yields a negative result. This, unfortunately, is a misleading factor from the standpoint of diagnosis. My attention has been called to this consideration in dealing with bone tuberculosis and I have been astonished to find that, in many cases, where we have distinct clinical signs of bone or joint tuberculosis, we are unable to recover the pathogenic organism, at least during the earlier stages. I am very certain that this prevails in renal tuberculosis, and it should be distinctly understood that we need not eliminate tuberculosis even though we do not find the organism after many appeals to the laboratory.

Dr. O. O. Witherbee, Los Angeles: I wish to say one word in reference to technic. The advisability of removing the ureter in the removal of the kidney in this disease was spoken of. This is very necessary and I would also advise removing the mouth of the ureter into the bladder, thereby removing the continuous source of infection to the bladder. I have a case at present which I am closely watching, and will probably be obliged to resort to this a little later. Dr. Lobingier spoke of draining the kidney locally. I have done this and my patient is draining from the lumbar region, and thereby I hope to clear up the condition at the mouth of the ureter. In reference to catheterization of the ureter, I think it is unfortunate that we have no other means of diagnosing the condition. The natural flow of this channel is such that the infection will not, of its own accord, reach the kidney, but we can carry it to the kidney very easily with our catheters. We do not



get it to the glomeruli, but we do get it to the pelvis of the kidney and thus extend the infection.

Dr. Granville MacGowan, Los Angeles, discussing: I did not hear Dr. Moore's paper and I do not know whether he dealt with the appearance of the mouths of the ureters in cases of tuberculosis of the kidneys. I think it is almost unquestionable in males that tuberculosis of the bladder will be secondary to tuberculosis of the kidney. There do from time to time occur primary cases of tuberculosis of the bladder, but in the male the majority of cases of infection will come through the seminal vesicles and perhaps ascend to the kidney, or, more frequently, the infection will descend from the kidney. When you take the bladder of a person who is complaining of frequent micturition, with little or no pus in the urine, and who has no gonorrheal infection of the urethra or prostate or seminal vesicles, and when upon examination you do not find nodules in the prostate or the vesicles and you use the cystoscope and find no ulcerative process, but around the mouth of one or other of the ureters you find a peculiar congestion of the smaller blood vessels, and microscopic telangiectasis as if paprika had been blown with great force into the mucous membrane, it gives you a key to the presence of a tuberculous infection in the corresponding kidney. Presumably even when the tuberculous process is in the cortex of the kidney, and none may be found within the calyx at all or in the tubular region, you will have the symptoms of dysuria, and almost invariably the condition about the ureter of the lame kidney will be found the irritative one which I have just described. I have seen this condition sufficiently often where subsequently the case proved to be tuberculosis of the kidney, and the undoubted presence of tubercle bacilli in the urine taken from that ureter could be demonstrated by the microscope and by injection into guinea pig to place stress upon it as a diagnostic point. With regard to the question of removal of the ureters—that is beautiful theoretically. Oftentimes it is impossible to carry it out, however. During the past year I have had three cases of renal tuberculosis confined to one side with enormous kidneys which occupied all of their side of the abdomen and projected beyond the navel; the adhesions were great and the abscesses multiple. In one case the kidney had to be removed on the inside of its capsule. Where conditions of that kind exist, the ureter will oftentimes still be patulous, its inflammatory condition will make it as large as two fingers; it will be bound down by adhesions to everything about it, and the removal of such a kidney can only be done safely by deliberately opening the abdomen and walling off the intestinal tract, and if you attempt to remove the ureter at the same time you are up against an extremely serious surgical operation which may prevent recovery of the individual.

Fortunately, we have a tuberculin for these cases. I have seen people who recovered from unquestioned tuberculosis of the kidney, where the urine was purulent from that side and the bacilli were demonstrated, with the use of tuberculin.

Another point I wish to speak about to condemn is the injection of the ureter with carbolic acid after these operations. I formerly believed in this procedure, but Dr. Moore and I had one case which cured me. We had a man whose one kidney was removed for tuberculosis, and carbolic acid was injected through the ureter into the bladder. He came to us with retention.

We found on operation that all of that side of the bladder which had come in contact with the carbolic acid was contracted and defaced by dense cicatricial bands, which had so interfered with the circulation of the opposite side that the hypertrophied mouth of the remaining ureter had become an edematous mass that filled the bladder as a tumor, inducing the obstruction for which we had to operate. We removed the outgrowth and relieved the condition.

## RELATION BETWEEN THE TONSILS AND TUBERCLE BACILLI.\*

By CARL C. WARDEN, M. D., Los Angeles.

The material for this study consisted of twelve pairs of tonsils routinely removed at the Children's Hospital from patients varying from seven to twelve years of age. The work was divided into two divisions: Histologic, Bacteriologic and Biologic.

1. HISTOLOGICAL EXAMINATION: The histologic examination of the tonsils consisted in fixing, hardening and sectioning of the tissues in the usual manner. The sections were stained to bring out the histologic structure and also to demonstrate the presence of bacteria, Gram positive and Gram negative, acid fast and non-acid fast.

In general, the histologic appearance of the tonsils was that of ordinary chronic enlargement, with the usual variations in the amount of fibrous tissues present. In no instances were tubercle formation or tubercle bacilli demonstrable. The numerous sections, however, showed a rather interesting condition so far as the presence of other organisms was concerned. Both Gram positive and Gram negative bacilli and cocci were to be seen in the crypts, and in the tissues at considerable distance from the crypts, where they were found lying without any appearance of abscesses, fibrosis or other inflammatory changes in their immediate vicinity. This observation would seem to substantiate the contention made by certain other observers that the tonsillar tissue rather lends itself as an abode or receptacle for various organisms without showing any particular reaction to their presence. The tonsils do not stand alone in this role; other tissues of the body, notably the lymphoid tissues in other localities sharing this peculiarity.

2. BACTERIOLOGIC AND BIOLOGIC EXAMINATION. The method followed in this portion of the investigation was a modification of that used by Krüger.<sup>1</sup> The tonsils were thoroughly washed in physiological salt solution, and portions of each pair, about the size of a bean, including the crypts, were removed with sterile instruments and reduced to a pulp in a sterile mortar with the aid of sterilized quartz sand. The pulp was then transferred to sterile flasks and twenty c.c.'s of twenty per cent antiformin solution added. The flasks were then placed in the incubator and kept at 37° until the entire mixture was homogeneous. The fluid was then filtered through double filter papers to remove the sand, the filtrates were centrifugated at high speed for twenty minutes, and the precipitate washed and centrifugated again three times. The final residue was then divided into three portions.

The first portion was smeared upon a slide, dried in air and fixed by heat. The stain employed was an intensive Gram stain, modified from that described by Krüger, consisting of an alcoholic solution of methyl violet, containing two per cent of phenol.<sup>10</sup> The slide was stained with this solution for two minutes, heated until steam was given

\* Read at the Forty-first Annual Meeting, State Medical Society, Santa Barbara, April, 1911.

off. The stain was then poured off, and, without washing, Gram's iodine solution was applied for two minutes, and the iodine solution then washed off with distilled water. The slide was then flooded with five per cent nitric acid for one minute, then covered with three per cent hydrochloric acid for ten seconds, washed in water and decolorized with acetone alcohol, and counter stained with Bismark brown.

The second portion of the residue was transferred to egg medium and placed in the incubator at 37°.

The third portion of the residue was inoculated into guinea pigs of average weight.

The controls employed in this study were as follows:

1. Material known to contain tubercle bacilli; sputum, kidney, lung, cervical lymph nodes, were treated in the same manner with antiformin, and subjected to the same routine examination.

2. Distilled water and antiformin alone.

3. Tissue known to be normal: Sputum, kidney, lung, lymph node.

The results of the study were as follows:

**CULTURES.**—*Controls.*—Negative in distilled water and antiformin.

Negative in all cases of normal tissue.

Positive in four out of five cases of tissue known to be tubercular.

*Determinants.*—Positive in one only of the twelve pairs. The same pair infected one guinea pig.

**BIOLOGIC RESULTS.**—*Controls.*—Guinea pigs receiving residue from distilled water and antiformin, (three animals) normal.

Guinea pigs which have received residue from normal tissue (four cases) normal after four weeks.

Guinea pigs which have received tissue known to be tubercular developed tuberculosis in three out of five animals inoculated.

*Determinants.*—Guinea pigs which had received tonsillar residue developed tuberculosis in two out of twelve cases.

**SLIDES.** The slides were of considerable interest. The control slides, prepared with residue from distilled water and antiformin, showed no organisms whatever.

The slides, three in number, prepared from normal tissue, showed no tubercle bacilli.

Slides prepared from tissues known to be tubercular (five slides) showed tubercle bacilli in all.

Slides prepared from the twelve pairs of tonsils showed undoubted tubercle bacilli in five. The appearance of the tubercle bacilli in slides stained by this method was studied with considerable care, especially in those which were made from tissues known to be tubercular and from other control slides prepared from cultures of tubercle bacilli, also stained in the manner described. The bacilli appear as solid or, for the most part, beaded organisms, stained a violet color, and in slides prepared from tissues they show a marked tendency to parallel

grouping. This method of staining was adopted because of the well known difficulty in the acid fast method as applied to tubercle bacilli, a point upon which Tint and Breskman<sup>2</sup> have recently alluded. Fränkel and Much,<sup>3</sup> however, using an intensive Gram stain, found Gram positive organisms similar to tubercle bacilli in the glands of Hodgkins' disease and lymphatic leukemia.

The antiformin method was applied because of its well recognized ability to exclude other organisms and to bring about solution of the tissues. This method has been used in somewhat similar studies by Hoffman,<sup>4</sup> Krüger,<sup>5</sup> Brown and Smith.<sup>6</sup> The antiformin method was further employed because of the difficulty in finding tubercle bacilli by histologic methods, although by using biologic methods, Harbitz<sup>7</sup> had frequently found animal virulent tubercle bacilli in the lymph nodes of children where the tissues appeared normal histologically. Ravenal<sup>8</sup> cites the work of Dieulafoy on tonsils in which by injecting guinea pigs with tonsillar tissue he obtained fifteen positive results out of ninety-six cases; Latham's work, in which he obtained seven cases of tuberculosis out of forty-five autopsies in children, is valuable, and he cites, further, Walsham, who obtained twenty-one positive results out of thirty-four autopsies.

The omissions in this study were four in number. The tuberculin test was employed in only one case out of the twelve, in which instance the reaction was negative.

2. It was not observed what proportion of the twelve cases showed signs of tuberculosis or cervical adenitis.

3. The adenoids, which were removed at the same time with the tonsils, were not studied.

4. A larger number of observations requires to be made in order to determine whether a larger proportion of positive cultures and inoculations would be found if the entire tonsillar residue were used in each culture and inoculation experiment instead of divided into three portions as outlined above.

**CONCLUSIONS.** The tonsils may be the avenue of tubercular infection in children oftener than supposed.

The observations of Dieulafoy and Latham are confirmed by this study, hypertrophied tonsils being shown to contain tubercle bacilli in about one out of six cases.

It is possible that the tubercle bacilli may assume a vegetative or saprophytic existence in the tonsils.<sup>9</sup>

#### REFERENCES.

1. Münch Med. Woch., 5-31-'10.
2. Jour. Med. Ass'n., 5-14-'10, p. 159.
3. Münch Med. Woch., '10-57-685.
4. Deutsch Med. Woch., 7-14-'10.
5. Same as 1.
6. Jour. Med. Res., June, '10.
7. Hektoen in Kleb's "Tuberculosis," page 376.
8. Ravenal in Kleb's "Tuberculosis," page 351.
9. Hart, Deutsch Med. Woch., 7-7-'10.
10. Formula.  
Sat. Alc. Sol. Methyl Violet 5 c.c.  
2% Phenol 45 c.c.  
Filter repeatedly.  
To be used fresh.



**Discussion.**

Dr. Wm. Ophuls, San Francisco, made some remarks in regard to some work along these lines done in the last year at Cooper Medical College.

Dr. C. C. Warden, Los Angeles: If the work of which Dr. Ophuls spoke in his discussion is published, I am sorry I was not aware of it. The student who prepared these tonsils for examination had a great many specimens and prepared a great many slides and it has been very interesting to know that he found such a large percentage of tubercular tonsils. The shrunken tonsil is more often considered tubercular than the hypertrophied tonsil.

## PROCEEDINGS OF THE SAN FRANCISCO COUNTY MEDICAL SOCIETY.

During the month of April the following meetings were held:

### Section on Medicine, Tuesday, April 4th, 1911.

1—Exhibition of Cases Demonstrating the Treatment of Tic in Childhood. E. C. Fleischner. Discussed by Drs. Porter, Horn, Fleischner.

2—Demonstration of Cases. Cervical Adenitis (syphilis, tuberculosis and cancer). René Bine.

3—Report of Medical Cases. (a) Polyposis Intestinalis. (b) Acute Thyroiditis. (c) Coccidioides of Lung. Jule B. Frankenheimer. Discussed by Drs. Dickson and Ash.

4—Obesity: Its Etiology and Treatment. René Bine. Discussed by Drs. Perry and Bine.

### General Meeting, Tuesday, April 11th, 1911.

1—Demonstration of Patients with Esophageal Disease, (with X-Ray demonstration). C. M. Cooper. Discussed by Drs. Schmitt, Krotoszyner, McClenahan, Cheney and Cooper.

2—Demonstration of Case of Bilateral Sciatica. Sol. Hyman.

3—Theories of Anaphylaxis. Hans Zinnser. Discussed by Dr. Kuhlman.

### Section on Eye, Ear, Nose and Throat, Tuesday, April 25th, 1911.

1—The Education of the Deaf Mute. Mr. Waring Wilkinson.

2—Report on Recent Ear, Nose and Throat Literature. M. W. Frederick.

### Obesity—Its Etiology and Treatment.

By RENE BINÉ, M. D., San Francisco.

Just as Venus personified feminine beauty, Apollo masculine grace, and Hercules masculine strength, so did jolly Silenus, son of Pan, foster-father of Bacchus, frequently intoxicated, bloated, with bald head, pig nose and pimply face represent a type well known to the ancients.

And ever since those days of old, have mortals more or less blessed or cursed with a superabundance of adipose tissue unevenly distributed throughout their anatomy, been subject to the ridicule of their leaner fellows.

Hippocrates and Galen, however, men of keen observation, did not indulge in witty remarks at the expense of fat men and women, but noted their lack of resistance to acute infectious diseases and their comparatively early deaths.

So that we physicians are not only complying with the dictates of our artistic temperaments when we restore sylphlike forms to these pyramids of flesh,

but we are more often practicing genuine prophylactic medicine, and while we are informed that an ounce of prevention is worth a pound of cure, so can pounds removed from these huge individuals often be measured in months or years added to their enjoyment of life.

To be sure, the etiology of obesity is a trifle complicated and before discussing its treatment, which after all is what interests the patient, we must look into these casual factors a little more closely, so as to get a better understanding of the various methods that have been and still are advocated in the medical journals and advertising columns of the lay press.

Obesity is after all but a pathological expression of a normal process. It is most often encountered in those people who eat when they're hungry, and drink when they're dry,—or think they are,—or fear they will be, or simply have the habit. It is astonishing how many of them overeat. Oh, no, at one meal you might not notice it, but it is the persistent intake of small excesses that leads to the obesity which these persons consider unavoidable. A daily excess of 200 calories above the maintenance diet means an addition of about 20 grams of fat daily or of 15 pounds a year, which with the other substances, particularly water, deposited in conjunction with the fat, will add about 20 pounds to the body weight. These 200 calories, Noorden states, are e. g. contained in 1/3 litre of milk, 25 grams of butter, 70 grams white bread, 4 10 litres of beer, 200 grams fat-free meat, etc. The writer whose average weight has been around 160 pounds reached 180 pounds in 1904, when in Vienna, during a period of five months, he averaged a daily addition of a pint to a pint and a half of heavy Munchener beer to his ordinary diet.

It must be further borne in mind that the loss of body heat by radiation in the obese is less than in the thin subject, who exposes proportionately a much greater surface, and this point must be considered by those who figure out diets by rule of thumb—so many calories to the pound.

Lack of exercise is another great fat accumulator. You have all seen the measured tread and slow gait of the portly gentleman who takes life easily and knows of no worries but those of putting on his shoes and keeping cool on hot days. In contrast you have observed his friend, the lanky chap who lives with him, eats the same food, aye, in greater amounts, in wild attempts to lose the sobriquet "skinny." You have seen him impatiently tapping his foot when the food was not immediately brought him, fidgeting in his chair while eating it, and then you have seen him walk swinging his arms back and forth as if his legs were not his real organs of locomotion. These are the things which account for the nervous, wiry man telling you that he can't get fat, no matter how much he eats, and for the corpulent one's belief that he always will be fat, no matter how little he eats. And of course we have here a very vicious circle. The fatter one gets, the less one exercises. Just think, you with your 150 pounds, how much would you care to do if you had to pack some 75 to 150 pounds extra load? Occupations also thus frequently favor the onset of obesity by a combination of overeating and a lack of exercise,—e. g. monks, butchers, bakers, innkeepers, brewers, and we might add policemen, are usually stout, but as Joslin says, who has ever seen an obese letter carrier? We often hear patients speaking of hereditary obesity, and physicians of constitutional obesity,

due to a perverted metabolism. But who can really estimate the amount of muscular exercise and the energy thus used up in any given case? There are, however, cases where scientific observations have demonstrated that though eating less and exercising more than normal, obesity may occur, so that one is obliged to return to Bouchard's theory of *ralentissement de la nutrition*, a slowing of metabolism,—to the belief that less caloric energy is developed per kilogram of protoplasm than in the normal. Experiments in regard to the amount of oxygen consumed by such obese persons, have seemed to confirm this theory, but in only a very few instances.

The influence of such organs as the thyroid, hypophysis, suprarenals, thymus, pancreas and sexual glands must be likewise considered. We know of but two diseases where in spite of a large intake of food, progressive and rapid emaciation may occur,—viz., Basedow's and diabetes. And just as in Basedow's disease, an increased or perverted secretion increases the intensity of the oxydation processes, so do we see the opposite condition in myxedema, where it is decreased at times to 50% of the normal. There are furthermore, numerous cases of hypothyroidism which do not present the classical symptoms of myxedema, but which may account for some cases of so-called constitutional obesity. And some observers have reported quite rapid increase in weight in thyroidectomized animals, but it must be admitted that these instances are exceptions.

In connection with this question of the influence of thyroid secretion upon metabolism, we wish to mention the syndrome which Dercum in 1892 named *adiposa dolorosa*. Its essential features are (1) the occurrence of circumscribed, very painful subcutaneous fatty tumors, located in various parts of the body, associated with (2) a diffuse lipomatosis (3) great muscular weakness and (4) psychic manifestations.

Of nine recorded cases with autopsy reports, 8 showed more or less marked changes in the thyroid; in the other case a normal thyroid was found, but an adeno-carcinoma of the hypophysis was discovered. Furthermore, in the five other cases where this was investigated, gross changes were found in the pituitary body in three, and microscopic changes in two instances.

So that while the pathological findings might seem to confirm the hypothesis that this syndrome is associated with a perverted thyroid function, the participation of the hypophysis and perhaps of the sexual glands, cannot be excluded. The extreme view held by some French writers, that Dercum's syndrome is purely an obesity associated with hysteria, has never received any support.

Thyroid medication has often been employed, and while two cases have been reported as cured, and varying degrees of improvement claimed in others, in a large number of cases, not the slightest amelioration could be detected.

The association of cerebral tumor or other cerebral disease with obesity has been long recognized, but attention has really only been focused upon it since Frohlich's publication in 1901. In 1908 Marburg collected thirty-five cases of hypophysis disease associated with adiposity, but there are likewise many cases of disease of this gland without any tendency to fat accumulation.

It is a well known fact that the common domestic animals and fowls usually become large and plump following castration, and it is generally believed that women tend to obesity at the menopause, or after the removal of their ovaries. According

to reports, eunuchs are frequently quite stout. But all this does not tell us whether the lack of internal secretions from the glands produces the slightest decrease in catabolic processes, or whether the result is due to changes of temperament, lessened activity and changed modes of living. As McCruden remarks, "Anyone who has compared the active quarrelsome life of a cock with that of the placid capon can see that a cock might be expected to be lean and tough."

Furthermore, thousands of women have been followed for years by a number of clinicians, and a thorough search through their statistics shows that at the most, 40-50% of the women take on fat when castrated, or at the menopause. In many other instances the patients became leaner.

Metabolism studies of castrated animals have been undertaken to help out on this important question. Loewy and Richter, who experimented on dogs, in 1899, maintained that castration did produce a delayed oxydation, but Lutbje's very careful observations on animals of both sexes went far to disprove this. Paechtner in 1906 argued in favor of this same theory, but more recently, (Feb. 1910) McCruden, who observed two healthy male and two healthy female dogs for a period of twenty days before and after castration, and controlled and carefully analyzed all food, urine and feces, showed that castration does not cause a decrease in oxydation and a retention of material,—in fact, if anything, a general tendency in the other direction.

There is no doubt that the different glands of internal secretion play a role in the production of some cases of obesity, but it is impossible with our present knowledge of the subject, to do more than hint at their possible relationships knowing as we do that removal of the thyroid is frequently followed by enlargement of the hypophysis; that acromegaly is often complicated by symptoms pointing to a deficient thyroid secretion, and that thyroid hypertrophy is usually present in cases of extirpation or failure of development of the genital organs.

And furthermore these cases are after all but a very small percentage of the large class of adipose persons, most of whom owe their surplus weight to the factors discussed in the first part of this paper, and it is to this group, rather than to the poorly defined one last discussed, that most of the following remarks are addressed.

Vanity drives a number of stout persons to physicians for advice in the matter of reduction cures. The severer grades of obesity usually produce symptoms in the course of time, for which relief is sought. Even in the absence of lesions of the respiratory tract, dyspnea frequently results, the fat masses in the abdomen and the abdominal wall impeding the excursions of the diaphragm, and fat around the heart likewise hindering its movements. Fat in the mesentery and perirenal regions furthermore keeps the diaphragm abnormally high. In addition to all this, more energy is required to move a heavy body than a light one and the heart is usually small in proportion to the weight. Coronary sclerosis frequently complicates the picture, being due most often to the same causes as the obesity. It remains to be shown that fatty deposits can directly compress and damage the cardiac muscle, though this belief is thoroughly rooted in most minds as a proven fact.

Many patients come for bronchitic, asthmatic, neuralgic or renal troubles. Still others, suffering from chronic joint troubles, or deformities, and their increased weight hindering locomotion.

The greatest caution must be observed in reducing children, old persons, tubercular patients and patients with contracted kidneys; as a general rule these cases should be treated in hospitals where they can be accurately observed, for thus only can harmful results be avoided. And except cardiac conditions



necessitate it, a diabetic should never be reduced.

Extreme cases of obesity are best handled for a while in hospitals. But the great majority of our patients will refuse this and as a matter of fact in most instances we will have to be content with ambulatory methods.

The great trouble with the obese patients who come for treatment is that they, figuratively speaking, expect to melt away. And nobody will deny that rapid losses of weight can be obtained under the proper conditions. But that is not the writer's method of choice, even in extreme cases of obesity, unless there be impending cardiac failure. Many are the cases that he has seen in the famous resorts of Europe, where not only natives, but wealthy Americans flock, in endeavor to undo twelve months' erroneous living. And he has seen them after a four and eight weeks' cure, from 20 to 50 pounds lighter in weight, with faces wrinkled, frequently weaker than at the beginning, especially those cases which were not under close medical supervision, and he has seen them soon after their emancipation, longing for some article of diet of which they had been deprived, and still later has he seen them rid of these longings—unconsciously or consciously regaining the weight lost at a cost of so much time, money and discomfort.

To be successful, the cure must be permanent. That almost goes without saying. But for the cure to be permanent, the treatment must be continued over a long period of months, years,—aye, a lifetime. It is a new method of living that the patient must be taught. And to accomplish this, the change must not be so radical a one as to cause suffering, and the loss of weight need be only rapid enough to convince the patient that the loss is a slow but steady and sure one.

As a matter of fact, paradoxical as this may seem, we frequently have to deal with poorly nourished obese individuals. An accumulation of fat is not a sign of robust health, as is well exemplified by the frequency with which one encounters obesity in typical cases of chlorosis and in chronic alcoholism. Our duty therefore lies most often in improving the general nutrition of our patients at the same time that we are reducing their surplus adipose tissue.

The first thing to do is to determine, if possible, what causes have led to the accumulation of fat in the individual case. And the instructions one must give patients will have to do not only with food and drink, but with mental and physical exercise, dress, sleep and a general regulation of their mode of living.

As a preliminary, it is often useful to have the patient prepare a careful record of the food eaten for a week before instituting treatment. This gives one an idea of the amount of food necessary to maintain their condition of obesity and furthermore serves a useful purpose in assisting the physician in making out a diet list and will prevent one's telling a patient to cut out from his diet things he never eats or never heard about, or ordering a teetotaler to cut out champagne, liqueurs, etc. The amount of exercise should likewise be recorded. From the tables given below one can roughly estimate the percentage of protein, carbohydrate and fat as well as the calorie values of the food consumed. [N. B.—Not included in this issue.]

It is a very easy matter to bring about a loss of weight, as even the more corpulent subjects in the famine districts of Russia and China ever testify, but the greatest care is required to have the patient lose quantitatively, fat, and not qualitatively, albumins.

The normal ration for a man at moderate work is usually given at approximately 100 gms. protein, 450 gms. carbohydrates and 75 gms. of fat. Were we to omit all carbohydrates and fats from the dietary, which of course is not only impossible but dangerous, we would have a deficit of 2475 calories and the body would in consequence burn 275 gms.

of its stored up fat. At this rate there would be a loss of 8.10 kilos a month. How can we therefore expect great losses in weight without at the same time producing a loss of albumins—just the thing we wish to avoid?

The exclusion of fat alone in the above diet would theoretically produce a loss of 5 pounds a month, 60 pounds in a year, but even then, by diminishing the carbohydrates, one need not punish a patient by the exclusion of all fat. The omission of oil, butter, cream, and fat on meats is easily carried out by any patient, and cutting down on pastry, sweets, bread, etc., is seldom of any difficulty. To reduce the intake to a still greater extent, still more fat could be omitted, e. g. such as is used in the preparation of various dishes, vegetables, sauces, etc., and carbohydrates can be further restricted by the omission of dishes made from flour, stewed fruits, milk and soups containing flour. The absolute exclusion of fat is practically impossible, for even the leanest meat, bread, skimmed milk, eggs, etc., contain some, and so do the green vegetables.

There is absolutely no need for the restriction of water, such as frequently ordered by physicians or self-prescribed by patients. It is a fact that many obese individuals are hearty drinkers, but usually of wine, whisky or beer, the latter particularly furnishing a high calorie value. Furthermore, tea, coffee, and light wines often stimulate the appetite and lead to overeating, and their omission renders a food restriction more tolerable. There are no scientific observations on record which can be used to demonstrate the influence upon fat accumulation, of fluids as such, taken with food. As regards the fat cells themselves, they contain on an average of 15% water, and this seems uninfluenced by increasing the fluid intake. In Alsace, where the geese are stuffed, but little water is given, and this is also the rule amongst raisers of livestock, whereas, the abundant administration of water renders fattening very difficult. If a patient is forbidden water with meals, for a time less food is consumed, but one soon becomes accustomed to this new habit, and the appetite returns to its former level. At times a dry diet is even followed by gastric and intestinal disturbances, renal colic, gouty attacks or protracted neurasthenia. So that while theoretically as well as practically but little can be stated as to the real effect of water, the writer believes that the greater the amount of water consumed, the better are the tissues flushed and the products of metabolism eliminated, and he therefore makes a practice of restricting fluids taken with meals, but insists upon the copious drinking of water between meals. The restriction of fluids in the treatment of obesity was introduced by Oertel, who had tried it on himself with astonishing success, but it was lost sight of by others that Oertel, in addition to his kypo-seiotic spine, was not only an obese but a cardiac, and that his fluid consumption consisted of several litres of good old Münchener beer, rich in carbohydrates. In cases of obesity, complicated by cardiac lesions, fluid restriction is sometimes indicated.

The introduction of salt free diets in our therapeutic armamentarium by Widal, Javal and Strauss, naturally led to their trial in obesity. Cutting out salt is always followed by a loss of a few pounds in weight, but this loss is probably mostly water, and is regained as soon as salt is again added to the food, and even at times without this addition. The absence of salt interferes with the palatability of certain foodstuffs for some people, and in this way prevents over eating, but as a rule this restriction is not essential, except, of course, in cases accompanied by cardiac weakness or in renal conditions associated with a sodium-chloride retention.

In the choice of foods, it may therefore be generally stated that we will recommend those most bulky, distinguished by their ability to satisfy hunger's cravings, rather than to nourish. And a reduction cure to be successful should be so regulated

that the subject's appetite is well satisfied.

Dark breads are preferable to the white ones, containing as they do a far greater proportion of indigestible particles, and therefore furnishing proportionately less nourishment while being "more filling" at the same time.

Forbidding potatoes is another point to which attention must be drawn. Is not the poor fat person sufficiently tortured without the deprivation of this article of diet, so universally beloved, relatively so cheap, and served up in so many appetizing forms? One large baked potato furnishes far less calories than the average breakfast roll or five lumps of sugar.

To go to the other extreme and institute a potato diet as does Rosenfeld, this to be kept up for months until the reduction is accomplished, and then one to two days per week, is so obviously unattractive to all patients as to require no further criticism.

While most authorities forbid soups, the writer can see no objection to such an article, very poor in nutritive value in proportion to its volume, provided it is not made rich by carbohydrate or fat additions.

The writer has in all reduction cures insisted upon the patient's using saccharine in place of sugar as an ordinary sweetener. It is a derivative of benzoic acid, and not a sugar, though five hundred times as sweet, and undergoing no transformation is excreted as such in the urine. 0, 05-0, 1 gm. per day is usually sufficient. If 40 gm. of sugar in the daily diet is thus replaced by saccharine, more than one pound of fat can be burnt up per month.

There are a great number of dietetic schemes and regimes to be found in the literature. The systems advocated by Banting, Ebstein, Oertel, Schweninger, Weir-Mitchell, Yeo, Dujardin-Beaumont, von Noorden, Bouehard, Chambers and Debove all have numerous followers except the first mentioned which is so severe in its restrictions as to be harmful rather than beneficial. They vary greatly in the amounts of albumins, carbohydrates and fats, but all agree in a very low total caloric equivalent. As above mentioned, the writer favors the ones with the high percentages of proteins in the majority of cases.

It is best to draw up a definite diet list for each individual, based, as previously stated, upon the patient's list, and giving quantitative as well as qualitative instructions. Patients find that it is no hardship to weigh their foods for a few days if necessary, or if they be so situated as to render this impossible, they can easily be made to estimate the amount required.

In general, you may tell your obese patients that they can partake of almost any kind of meat (raw, boiled or roasted) or fish provided that it is lean, and the amount moderate. Tell them to eat all the lettuce, rhubarb, spinach, leeks, cress, celery, Brussels sprouts, cabbage and other green vegetables they desire. Goose, duck, pork, sausage, liver, kidney, marrow, patties and such vegetables as peas, beans, corn, beets they are to avoid. Cereals and bread-stuffs, macaroni, spaghetti, cornstarch, etc., must be eaten sparingly, if at all. The only fruits to avoid are bananas and nuts. Tell them to avoid butter, olive oil, cream, pastries, candies and jellies. Cheese, being very rich in protein, is to be highly recommended, especially varieties with the lower fat content such as cottage cheese. Whey is likewise of value.

In one of the writer's cases, where a rapid reduction was desirable, occasional milk days were tried with success. About once a week the patient remained at home, and the only food consumed consisted of one litre of milk and one or two eggs. But this treatment necessitated cessation of exercise on the milk days, and this being impractical, it was discontinued. Incidentally, this particular patient, aged 38, was without much difficulty reduced from 327½ to 219 pounds from September 2, 1908, to

February 17, 1910. Since that time, conditions have been such as to oblige her to forego all attempts at treatment, and she reported after an absence of 11 months, weighing 246¾. During the last 8 weeks she has lost 6¾ pounds. Another patient was reduced 43 pounds in four months without recourse to this milk diet. In cases of cardiac incompetence the writer does not hesitate to institute this so-called Carrell-cure, but then of course, the conditions are vastly different and so are the therapeutic indications. The average cases of obesity (the two here mentioned are extremes) should not be made to lose over one-half to one pound per week.

In every instance, but particularly for those with a tendency to muscular laziness, exercise should be prescribed, as it favors the retention of body protein, builds up muscle and is done at the expense of the sugars and fat. The amount prescribed should be moderate at the start and slowly but gradually increased. Many patients who are loaded down with fat at the onset of the treatment, are delighted with the ease with which they can get about as time goes on,—they feel lighter, their muscles get more powerful, their wind improves, and chronically stiff joints limber up. Walking and climbing are the exercises most easily carried out, but horseback riding, cycling or gymnastic exercises can be employed. Where chronic cardiac lesions, muscular weakness or paralysis interfere, massage and passive movements can be employed, but as far as producing any effect upon the reduction cure is concerned, even a good German author requires the word "humbug" to express his sentiments.

One has but to visit the various Turkish and Hammam bath establishments in any city to see obese individuals engaged in what they term "sweating off their fat." The scales show a loss of two to five or even more pounds and the scales don't lie. But the scales cannot tell these deluded creatures that their loss is mostly one of water and that fat must be starved and worked away.

Swimming is excellent exercise, and, in many instances, to be recommended. Cold baths, or cold half baths followed by cold rubs are advocated by Noorden and others, but the writer believes that he has seen just as good results with the use of warm baths (40° C), to which no patient objects, and which furthermore are usually followed by a sensation of well-being and refreshment, and seem to strengthen rather than to weaken.

Clothing should be so arranged as to favor free respiration and not to hinder diaphoresis. Sleep should be limited to seven or eight hours in the twenty-four, Pettenkofer and Voit having shown that sleep favors an accumulation of fat.

In spite of the numerous anti-fat remedies advertised in the lay press, there is no drug cure for obesity. Marmola, Kellogg's Obesity Food, Arbolum Mixture, Rengo, Protonuclein are in daily use. The only active principles in Marmola have been shown to be the extracts of phytolacca berries and of thyroid, while Rengo consists mostly of thyroid, poke-root and casearia. These remedies effect their greatest reduction in the patient's purse and chiefly benefit their manufacturers.

There is no need for our resorting to thyroid medication unless the clinical picture is clearly one of hypo-thyroidism, or unless a conscientious dietetic and exercise regime fails to produce any benefit and thus leads us to suspect some glandular fault. The grave danger in thyroid medication is the destruction of protein which may surpass that of fat, unless a high protein ration is ordered. It has been definitely shown that at times thyroid medication destroys muscle, prevents the combustion of fat and lengthens the reduction cure. In a few instances a rapid loss of weight occurs but is followed by a period where even very great doses are devoid of any action on the weight.

The large doses necessary to bring about the loss of fat desired by the obese, are more apt to



be followed by symptoms of Basedow's disease than by the expected decrease in weight. Adults should never exceed a gradual increase of thyroid extract beyond 3 gr. daily, and children beyond  $\frac{3}{4}$  gr., and at that, thyroid medication should never be long continued. In but one case did the writer resort to the administration of thyroid extract, and then purely for experimental purposes, and the loss of weight was if anything retarded rather than accelerated thereby. Magnus-Levy believes that the loss of weight following thyroid medication is frequently, in a great measure, due to the increased nervous excitability and greater exercise in otherwise phlegmatic individuals.

Ovarian tablets are occasionally useful adjuncts in the obesities accompanying or following an artificial or natural menopause, and the writer knows of one case where their administration apparently played a most successful part in a reduction cure. They can do no damage and can therefore be tried without fear if conditions warrant.

The administration of laxatives is frequently necessary, but attempt to prevent fat absorption by continued brisk purgation is most irrational, the protein absorption being just as apt to suffer.

A drug most often indicated, and which the writer invariably prescribes, more as a blood food than as a drug, is iron. As already emphasized, most of our obese patients are qualitatively underfed and need building up along the right lines. Many of them require cardiac stimulation, for a short or long period, and digitalis is most often of benefit in these instances. Combined with diuretin it is of value where there is a tendency to edema.

The writer often prescribes a pill of powdered digitalis leaves gr. ss, reduced iron gr. 1, extract rhubarb gr. 1, or some such combination.

In conclusion, it should be emphasized that inasmuch as obesity is the exaggeration of physiological processes, its treatment must rest upon a purely physiological basis. If safety is considered, there is no short cut to the desired end. Prolonged treatment is both safe and sure, and if these facts are borne in mind by all, and put into practice by those called upon to reduce the great heavy-weights, the writer is certain that the beauty of the latter will not only be enhanced, but their muscles made firmer, their existence more comfortable, and their lives lengthened.

#### BIBLIOGRAPHY.

Of the references liberally quoted, and not credited in the text, the following deserve mention:

- Mathieu: *Hygiene de l'Obese*, 1906.  
Lyon: *Adiposis and Lipomatosis*. *Archiv. Int. Med.*, July, 1910.  
Bornstein: *Diatetische Kuren*. *Wiener Klinik*, 1907.  
Krehl: *Lectures in Univ. Heidelberg*, 1907.

#### Discussion.

Dr. A. W. Perry: I have devoted a great deal of attention to obesity. I have always found that where I could reduce the water in the system I could reduce the obesity and the complaints associated with it. I believe that the proximate cause of obesity is dilatation of the lymph spaces, the elastic fibres becoming weakened, due to the large accumulation of lymph. A more remote cause is the inherited or acquired inability of the renal cells to excrete salt sufficiently. Where the normal amount of chloride of sodium is taken into the body per day, that is 12-15 grams which is sufficient for all needs of the body, if 20 grams are taken and 15 grams is excreted every day, 5 grams of salt is accumulated and this requires a kilogram of water retained in the body to dilute the serum to what is agreeable to the body. In regard to the reduction of weight by the restriction of drink, I always take the blood pressure of the patient in an attempt to reduce the weight and where the blood pressure is high I can always reduce by the restriction of water, but I have seldom been able to do anything

with the people whose blood pressure is low. Where obesity is associated with bronchitis or heart disease I think the obesity offers very important therapeutic indications. I have had a number of cases of bronchitis and asthma, lasting over periods of from 10 to 15 years, in which these conditions have been relieved by reducing the weight, and always by restriction of water. It is not advisable to reduce the food beyond 2500 calories per day, it is better to give too little than too much liquid.

Dr. René Bine. I was familiar with Dr. Perry's views on the subject as it is but a comparatively few years since he presented them to this Society. But I am convinced that there are no proofs for his contentions. We are all familiar with the results of Widal, Javal and Strauss, who by means of salt-free diets and restriction of fluids, brought about great reductions of weight in cases of cardio-renal disease, the loss being due to the getting rid of edemas and of what Widal styles pre-edemas. But in obesity no restriction of fluids, per se, is capable of causing either a permanent loss of weight, or of causing even a marked loss, however temporary it might be.

#### Demonstration of Case.

RENÉ BINE, M. D., San Francisco.

Case 2. Adenitis; syphilis and tuberculosis. L. G., age 17, waiter. Had measles and diphtheria during childhood. He contracted "Dhobee Itch" in the islands, two years ago, and on his return was no sooner cured than, while he had a severe cold, the glands on the left side of his neck began to swell, this in July, 1910. Since then the glands have become smaller, but enlarge with every fresh cold. Examination revealed a general enlargement of the glands; the left cervical were exceedingly large, fairly hard, not adhering to the underlying tissues or to the skin, and ovoid and painless. One bunch seemed matted together. The epitrochlears were quite distinctly enlarged, as were the axillary, inguinal and the other chains in the right and left cervical regions. The spleen was easily palpable fully two inches below the left costal margin on ordinary inspiration. The tonsils were definitely diseased. Other than this there were practically no other abnormal physical signs. The diagnosis had naturally to be made by elimination, for lues, tuberculosis and Hodgkin's disease had to be borne in mind as possibilities. The blood examinations revealed a normal red, white and differential count. Wassermann and Noguchi reactions were \* \* \* (Dr. L. S. Schmitt). Calmette and Moro tests were positive, the Pirquet was negative. This was all very interesting, for the presence of positive Wassermann and Noguchi reactions have been reported in Hodgkin's disease, where lues could practically be ruled out. On the other hand, the glands in the left cervical region impressed us as possibly independent of the general condition, most probably tubercular, with the tonsils as portal of entry for this infection. Under local anesthesia, a gland was removed from the neck, and section made. No changes as seen in Hodgkin's disease were found, whereas a few tiny grayish foci could be distinguished macroscopically, and while no tubercles were seen microscopically, foci of epithelioid cells suspicious of tuberculosis were found. Some of the gland material was triturated in normal salt solution and the resulting fluid injected subcutaneously into left thigh of a guinea pig. One month later large gland found in left inguinal region, smears from which showed tubercle bacilli. The diagnosis is thus made;—the boy has tuberculosis of the left cervical glands, and also syphilis. He has been given an injection of salvarsan, is continuing with mercurial inunctions and iodides, and we now intend to treat his tubercular glands with tuberculin, though should any signs of extension of this process, or caseation occur, we shall not hesitate to advise radical surgical treatment.

## SOCIETY REPORTS

### ALAMEDA COUNTY.

The April meeting of the Alameda County Medical Association was devoted to Medical Inspection in the Public Schools. The program was arranged by Dr. N. K. Foster and was as follows:

I. Health Development in the Public Schools—10 minutes. Dr. N. K. Foster, Oakland.

II. The Influence of Eyestrain in the Presence of Hypertrophied or Diseased Tonsils and Adenoids on the Development of the Child—15 minutes. Dr. H. G. Thomas, Oakland.

III. Oral Hygiene and Its Influence upon the Proper Development of Children—15 minutes. Dr. C. E. Evans, President Alameda County Dental Society.

IV. The Nurse in the School and Home—10 minutes. Mrs. L. C. Hallingsworth, Nurse Oakland School Department.

V. Opening of Discussion—15 minutes. Dr. E. B. Hoag, Director of Health Department, Berkeley Schools.

Among those who took part in the discussion were Dr. Watkins of San Francisco, Mr. Wood, Superintendent of Schools of Alameda, and Dr. A. S. Kelly.

PAULINE S. NUSBAUMER, Secretary.

### CALIFORNIA ACADEMY OF MEDICINE.

The California Academy of Medicine held its regular meeting on Monday evening, Feb. 27th.

The scientific program was as follows:

1. A Bone-cyst of the Humerus, with Radiograms and the Patient. Harry M. Sherman. Discussed by Drs. Stillman, Terry and Sherman.

2. A Plague-like Disease of Rodents. George W. McCoy, P. A. Surgeon P. H. and M. H. S.

3. Demonstration of Pathological Specimens. H. B. A. Kugeler. Discussed by Drs. Sherman and Kugeler.

The following were duly elected to membership: Sol Hyman and George W. McCoy.

Refreshments were served at the close of the program.

The California Academy of Medicine held its regular meeting on Monday evening, March 27th. The scientific program was as follows:

1. Certain Aspects of Anaphylaxis. Dr. F. P. Gay, Professor of Pathology, University of California. Discussed by Drs. Zinsser, Montgomery and Gay.

2. Medical Notes Taken in South America. Dr. Douglas A. Montgomery.

Professor Robert E. Swain and Professor M. E. Jaffa were duly elected to membership.

At the close of the program refreshments were served.

On Monday evening, April 24, 1911, the California Academy of Medicine held its regular meeting. The scientific program was as follows:

1. Case Report, Leo Eloesser.

2. On the Pressor Action of an American Mistletoe (a preliminary report). Dr. A. C. Crawford, Associate Professor of Pharmacology, Leland Stanford Jr. University.

3. A Report of a Case of Fracture of a Cervical Vertebra, with Especial Reference to Disturbances in Body Temperature. Dr. Ray I. Wilbur. Discussed by Dr. O. P. Jenkins, Professor of Physiology, Leland Stanford Jr. University; Harry R. Oliver and James T. Watkins.

The following applicants were unanimously elected to membership: Drs. F. S. Maxwell, Edmund O'Neill, Chas. A. Koffoid, H. H. Yerington, Harry E. Foster.

Meeting adjourned.

### CONTRA COSTA COUNTY.

On Sunday, April 30th, the Contra Costa County Medical Society met at Martinez to inspect the new County Hospital. The secretary, Dr. Frank Rattan, was ill, and Dr. W. B. Brown served as secretary. A large number of the physicians of the county attended this meeting, together with the county supervisors and distinguished business men. Lunch was served and afterward the hospital was thoroughly inspected, and much credit given to the president of the County Society, Dr. C. R. Blake.

Dr. Wallace I. Terry of San Francisco, was present and operated, with the assistance of Dr. J. J. Hogan, of Vallejo, upon a patient who had numerous complications following an old appendicitis. The next meeting of the Society will be held at Brentwood.

### ORANGE COUNTY.

The Orange County Medical Society held the twenty-second annual meeting in the parlors of the new Armory Hall on Tuesday evening, May 2, 1911. The retiring President, Dr. Violet of Garden Grove, then read the annual address on "The Citizenship of the Doctor." The following officers were installed: President, Dr. J. M. Burlow, Santa Ana; Vice-President, Dr. Ida B. Parker, Orange; Secretary, Dr. John Wehrly, Santa Ana; Treasurer, Dr. H. S. Gordon, Santa Ana; Librarian, Dr. C. D. Bull, Santa Ana.

After the installation the Society adjourned to meet at the Dragon, where the annual banquet was served, Dr. John L. Dryer acting as toastmaster of the evening. The following members and their wives were present: Dr. and Mrs. J. M. Burlow, Dr. and Mrs. Boyd, Dr. and Mrs. Clark, Dr. and Mrs. Dryer, Dr. and Mrs. Dobson, Dr. and Mrs. Freeman, Dr. and Mrs. Gordon, Dr. and Mrs. Shaul, Dr. Johnston, Dr. Parker, Dr. and Mrs. Wehrly, Dr. and Mrs. Violet and Miss Scarlett from Orange.

JOHN WEHRLY, Secretary.

## BOOK REVIEWS

**Principles and Practice of Modern Otology.** By J. F. Barnhill and E. D. Wales. Published by W. B. Sanders Co., Philadelphia. 1911.

In "Modern Otology," Barnhill and Wales, we have a splendid book badly named. Had the authors selected as a title "The External and Middle Ear" one would feel that they had accomplished splendidly what they had set out to do. This portion of the book is one of the best in the English language. It is clearly and concisely written and full of the very best common sense. If one does not agree to the position of the chapters on chronic non-suppurative otitis media it is simply a matter of personal opinion. Perhaps for a student this arrangement is the best. The chapter on the bacteriology of the ear is excellent but it is only regrettable that Neumann's results were not also included in the discussion.

The great failure of the book is in its handling of the internal ear; to classify it as modern would be a travesty on the work of Jansen, Alexander, Barany, Neumann, Ruttin and Shambaugh. It is certainly to be regretted that the authors did not at least make more of an attempt to give the student an insight into the physiology of the labyrinth and its relationship to the brain and eye, as the treatment even of middle ear affections and the indications for operation hinge so intimately upon the condition of the labyrinth that they can not be separated and practically not a word is said of this relationship. The diagnosis and treatment of cerebellar abscess of course follows the work in the labyrinth and is equally poor.

It is to be hoped that in another edition this portion of the book will be brought up to date when it will certainly be the best book for a student published in English.

H. B. G.



**Vaginal Celiotomy.** By S. Wyllis Bandler. Published by W. B. Saunders Co. 1911.

This carefully written, beautifully illustrated and well printed volume of 450 pages will serve a useful purpose, for no one can deny the almost complete neglect of the vaginal route by the great majority of American and English surgeons.

While the author does not share the enthusiasm of the early French vaginal hysterectomists he very justly points to the urgent need of a detailed knowledge of the vaginal route in order to deal intelligently with such conditions as cystocele, prolapsus uteri and certain acute adnexal infections.

The chapter on total prolapse of the uterus is particularly illuminating. The technic of vaginal cesarean section is described in detail.

The reviewer takes pleasure in recommending Bandler's lucid review to those who desire to acquaint themselves with the advantages of the vaginal route and the technic of vaginal interventions. D. T.

**The Non-Surgical Treatment of Duodenal Ulcer.**

By Geo. Herschell, M. D. Published by H. J. Glaisher, London, 1910.

In marked contrast to Moynihan's edict that "the treatment of chronic duodenal ulcer should always be surgical," Herschell considers surgical treatment urgent only in the presence of stenosis, hemorrhage, of perforation, actual or impending. Surgery must be resorted to if extensive thickening or adhesion offers obstacles to healing.

He attributes the failures of medical treatment to the lack of persistence on the patient's part and to the usual ignorance of what we might term physiological therapeutics. Correction of such underlying causes as pyorrhoea, intestinal auto-intoxication and anemia are preliminaries in the treatment which is directed towards

1. Combating a possible deficiency of antitryptic and autolytic substances in the blood.
2. Reducing the acidity and peptic power of the gastric juice, as well as inhibiting its secretion.
3. Avoiding gastric distention.
4. Treating adhesions (fibrolysin, tiodine).

This monograph is a reprint of an article which recently appeared in the "Clinical Journal." It can easily be read in about twenty minutes and its author should certainly be followed in most of his teachings, Moynihan notwithstanding. R. B.

**Collected Papers by the Staff of St. Mary's Hospital Mayo Clinic, Rochester, Minnesota, 1905-1909.** Published by W. B. Saunders Co., Philadelphia, 1911.

The work of W. J. and C. H. Mayo and their clinical associates is so well known, as to require but little comment at this date, particularly in view of the fact that all the papers included in this collection have been published in current medical literature.

The average busy practitioner is, however, unable to consult but a very limited number of the very great profusion of medical journals published, and to those interested, this book will serve a useful purpose. The papers on the diagnosis and surgical treatment of gastro-intestinal lesions, as well as those on the pathology and surgery of the thyroid, represents some of the most noteworthy American contributions to the study of the subjects. R. B.

**Gynecological Diagnosis.** By Walter L. Burrage, A. M., M. D. Published by D. Appleton & Co., New York and London, 1910.

The title of this work suggests a valuable and timely contribution to our list of practical books, and one would perhaps be apt to welcome such a volume heartily, but in the perusal is rather surprised at the brevity of articles on important general and special subjects. However, this is partly accounted for by the author's remark that concise statement of essentials has been the aim. The illustrations are taken in great number from such familiar authors as Dudley, Kelly, Williams and others.

The claim of the author that differential diagnosis is entered into extensively is not well borne out by the text. Here again we find him borrowing in the form of tables of parallel columns principally from Dudley, some however, being original or partly so. Diagnosis of vesical, rectal and mammary disorders and gynecological disorders of infancy and childhood are briefly discussed in special chapters.

The classification of the subject matter deserves commendation. To quote from the author's preface: "The views here expressed and the methods described are those that have found favor in my practice, and they are put forward, not with the feeling that they are new, original or at all inclusive, but that having proved useful to me they may help others also to unravel the knotty problem of gynecology." Such statements as these leave very little to be said by the reviewer, except perhaps, the fact that little can be found in this work which is not available in our standard text books on gynecology.

In conclusion, the reviewer deems the present volume a safe guide, in this perhaps, attaining the aim of the author, but can not recommend it as either a thorough or a scientific treatise on gynecological diagnosis. G. A. W.

**A Manual of Nursing.** By Margaret Frances Donahue. Published by D. Appleton & Co., New York. 1910.

We find in this text book a very thorough, explicit and at the same time a simple handling of the various practical branches of a nurse's training. It is essentially as its name implies "A Manual of Nursing," and everything actually pertaining to the care of the sick is explained in a manner that engages the reader's attention. Especially worthy of commendation is the chapter on "Observation of Symptoms" and if the junior student imbibes all contained therein, she cannot fail to obtain an excellent foundation for her future work.

The chapter on "Dietetics" also deserves special mention, as therein is shown in a well defined and intelligent manner, the various food values with their relative desirability for human consumption, and as to their use to the best advantage in health and disease.

The plea for a higher standard of education for admission to the nursing profession is well stated, but the writer believes will be in vain (in this State at least) until such times as proper legislation is had on the subject. Until the training of aspirants for the high and honorable calling of a nurse is restricted to the teaching hospital, i. e. those attached to universities, little improvement in the present status of the nursing profession can be hoped for. As long as private hospitals, run with an eye to the treasury of the institution, are allowed to train (?) aspirants to the cap and uniform, just so long will women, many utterly unfitted by lack of preliminary education, and wholly lacking in a proper professional training, be turned out to swell the ranks. The nursing profession is to-day in the same position as the medical was a decade or two ago and it will require hard and earnest co-operation of the leaders therein to bring about this much needed reformation. A. A. O'N.

S. L. M. O'N.

#### LANE LECTURES.

Editor Calif. State Journal of Medicine:—Will you kindly give notice in the next issue of the State Journal that the Lane Medical Lectures for 1911 will be given this year by Dr. Ernest Fuchs, Professor of Ophthalmology in the University of Vienna, on "The Importance of Ophthalmology in its relation to Systemic Diseases." The course will be given at Lane Hall beginning Monday, August twenty-first, and continue through the week.

Very truly yours,

STANLEY STILLMAN.

## BOARD OF EXAMINERS, APRIL SESSION.

## Passed.

School of Medicine.	Date of Graduation.	Percentage.
Coll. of P. & S., S. F., Cal.	5, 19, 09	75.0
Coll. of P. & S., S. F., Cal.	6, 6, 07	80.6*
Coll. of P. & S., S. F., Cal.	5, 19, 09	77.7
Coll. of P. & S., S. F., Cal.	5, 19, 09	82.5**
Cooper Med. Coll., S. F., Cal.	5, 5, 10	83.9
Hahnemann Med. Coll. of the Pac., S. F., Cal.	5, 27, 09	75**
Atlanta Coll. of P. & S., Ga.	3, 31, 03	75.0
Bellevue Hosp. Med. Coll., N. Y.	3, 28, 92	77.0 plus 5-82.0
Chicago Med. Coll. & Med. Dept. N. W. Univ., Ill.	3, 27, 83	79.1 plus 10-89.1
Coll. of Phys. & Surg., Chicago, Ill.	2, 23, 86	77.7 plus 10-87.7
Coll. of Phys. & Surg., Chicago, Ill.	6, —, 06	81.9
Columbia Univ. & Coll. P. & S., N. Y.	6, —, 09	87.6
Eclectic Med. Coll., Cincinnati, O.	—, —, 85	67.0 plus 10-77*
Hahnemann Med. Coll., Chicago, Ill.	4, 9, 94	80.8 plus 5-85.8
Harvard Med. School, Mass.	6, 27, 94	85.7 plus 5-90.7
Indiana Univ. Sch. of Med., Indiana.	6, 22, 10	78.4
Jefferson Med. Coll. of Philadelphia, Pa.	6, 7, 09	81.6
Johns Hopkins Univ., Md.	6, 12, 06	89.3
Long Island Coll. Hosp., N. Y.	6, 1, 10	84.4
Med. Sch. of Maine.	6, 23, 08	81.7
Med. Coll. of Ohio.	3, 8, 83	77.3 plus 10-87.3*
Med. Coll. of Ohio.	4, 9, 96	81.0 plus 5-86
Medico Chirurgical Coll., Penn.	6, 2, 06	88.9
Mo. Med. Coll., St. Louis, Mo.	3, 5, 89	82.0 plus 10-92
McGill Univ., Canada.	6, 12, 03	89.0
Royal Coll. P. & S. & Fac. P. & S., Scotland.	10, 26, 03	
N. W. Univ. Med. Sch., Ill.	6, 15, 99	84.1 plus 5-89.1
Rush Med. Coll., Ill.	3, 28, 93	70.2 plus 5-75.2
Rush Med. Coll., Ill.	2, —, 87	77.6 plus 10-87.6
Rush Med. Coll., Ill.	6, 1, 09	90.2
Rush Med. Coll., Ill.	5, 25, 99	72.3 plus 5-77.3
Rush Med. Coll., Ill.	6, 18, 02	80.6*
Rush Med. Coll., Ill.	10, 5, 03	83.4
St. Louis Univ., Mo.	4, —, 04	88.0
Univ. of Manitoba, Canada.	4, —, 94	81.6 plus 5-86.6
Univ. of Mich.	6, —, 01	91.0 plus 5-96.0
Univ. of Minn.	6, 2, 04	81.3
Univ. of Palermo, Italy.	7, 28, 00	75.0
Univ. of Pennsylvania, Pa.	6, 17, 08	93.0
Univ. of Pennsylvania, Pa.	6, 15, 99	73.2 plus 5-78.2
Western Reserve Univ., Ohio.	3, —, 79	75.0 plus 15-90.0*

## Failed.

Cal. Med. Coll. (Elec.), Cal.	5, 16, 06	67.8
Coll. of P. & S. of Los Angeles, Cal.	6, 26, 08	71.4*
Coll. of P. & S., S. F., Cal.	6, 6, 07	55.1*
Coll. of P. & S., S. F., Cal.	5, 19, 10	71.5**
Cooper Med. Coll., S. F., Cal.	5, 5, 10	65.4**
Cooper Med. Coll., S. F., Cal.	5, 5, 10	70.5**
Am. Med. Coll., St. Louis, Mo.	5, 10, 98	51.8 plus 5-56.8*
Cleveland Coll. of P. & S., Ohio.	7, 4, 84	64.5 plus 10-74.5*
Columbus Med. Coll., Ohio.	3, 24, 82	66.0 plus 15-81.0
Coll. P. & S. of Keokuk, Iowa.	3, 1, 81	47.8 plus 15-62.8
Eusworth Med. Coll., Mo.	5, 2, 08	64.3
Homeo. Coll. Univ. of Mich.	6, 30, 92	62.7 plus 5-67.7*
Keokuk Coll. P. & S., Iowa.	3, 1, 87	61.4 plus 10-71.4
Louisville Nat. Med. Coll., Ky.	5, 9, 89	33.2 plus 10-43.2
Med. Coll. of Ohio.	4, 4, 95	29.8
Pulte Med. Coll., Ohio.	3, 27, 94	65.8 plus 5-70.8*
St. Louis Univ. Med. Sch. (Sims Beaumont Med. Coll., Mo.)	5, 19, 06	72.3
Tokio Charity Med. Coll., Japan.	7, 31, 07	64.0*
Univ. of Indianapolis.	4, 24, 02	71.3
S. S. Still Coll. of Osteopathy, Mo.	4, 3, 01	61.8 plus 5-66.8



## Osteopathy—Passed.

Am. Sch. of Osteopathy, Mo.....	5, 31, 10	77.0
L. A. Coll. of Osteopathy, Cal.....	1, 26, 11	89.1
L. A. Coll. of Osteopathy, Cal.....	1, 26, 11	90.3
L. A. Coll. of Osteopathy, Cal.....	6, 3, 09	75.8
Pac. Coll. of Osteopathy, Cal.....	6, 23, 10	76.8*
Pac. Coll. of Osteopathy, Cal.....	6, 23, 10	75.0*
Pac. Coll. of Osteopathy, Cal.....	6, 23, 10	75.0*
S. S. Still Coll. of Osteopathy, Iowa.....	1, —, 05	79.2*

## Osteopathy—Failed.

L. A. Coll. of Osteopathy, Cal.....	6, 2, 10	55.3*
L. A. Coll. of Osteopathy, Cal.....	6, 2, 10	64.2
L. A. Coll. of Osteopathy, Cal.....	1, 26, 11	45.7
Pac. Coll. of Osteopathy, Cal.....	6, 23, 10	65.7*

## New Licentiates.

F. C. Ainley, Geo. C. Armstrong, H. T. Arvin, Jas. H. Barnebee, A. A. Blatherwick, W. DeW. Boggs, A. I. Bouffleur, W. L. Bowling, C. D. Cobb, S. L. Corpe, E. A. Crokat, E. P. Darlington, W. L. Dickerson, Jas. F. Doyle, O. B. Fossum, G. A. Foster, A. E. Gooden, H. M. Hall, R. E. Hamlin, E. L. Hook, G. Hoskins, J. T. Johnson, J. A. Keown, L. C. Kinney, G. D. Lyman, I. L. Magee, R. L. Maloney, G. E. Malsbary, C. C. Manger, T. R. McHugh, J. H. Munro, O. E. Pinneo, J. A. Rice, F. W. Rinkenberger, G. H. Roth, S. Schiro, W. B. Schwuchow, C. J. Stillman, R. L. Tebbitt, R. A. Terry, A. H. Vance, W. H. Vilas, L. P. Wentworth, A. E. Whiting, J. F. Willard, C. H. Wimpres, T. C. Witherspoon, G. C. Wrigley.

\* Taken before.

# REFERRING AGAIN TO THE MATTER OF MALPRACTICE DEFENSE BY THE MEDICAL SOCIETY OF THE STATE OF CALIFORNIA AND TO A CERTAIN CIRCULAR LETTER SENT OUT BY A PRIVATE MALPRACTICE COMPANY.

I. In the February Bulletin of the Los Angeles Medical Association there appeared the following item:

## "Regarding Malpractice Defense by the State Society.

"A recent malpractice suit for \$50,000 in Los Angeles draws attention to the clipping given below, and also to the following facts:

"1. In this recent suit, one of the 'private companies' acted so queerly, that it was not even represented in the defense.

"2. The burden of the defense rested on the attorney for the Medical Society of the State of California.

"3. The jury took only twenty minutes to award a verdict in favor of the doctor who was sued.

"Conclusions: Malpractice defense by the Medical Society of the State of California is absolutely efficient. If you wish to donate \$10 or \$15 to a private company (organized for profits only), that is your business, but it would be more altruistic to donate it to the building fund of the Los Angeles County Medical Association."

II. About April 7th, the Secretary of the Los Angeles County Medical Association, who is the editor of this Bulletin, received from several members copies of a circular letter from a private malpractice company taking issue with the above item. We take it that most of the members of this Association have received copies of that letter and have read the same.

## Comments on the Above.

We do not intend, at this time, to discuss in great detail this circular letter from the manager of this private malpractice company, in which the manager would make the members of this Association believe that the Bulletin of this Association in printing the above item in the February Bulletin, did that company a gross injustice. In this February item, there are only two sentences directly or indirectly

bearing on private malpractice companies, and we will consider each in turn.

1. To quote from the above "In this recent suit, one of the 'private companies' acted so queerly, that it was not even represented in the defense."

When this statement was written, it was the truth, as we understood it at the time, from Dr. Smith's own conversation with Dr. Kress. When Dr. Smith came to Dr. Kress asking that he use his influence to have Dr. Smith's friend, Mr. Newlin, appointed as the attorney for the State Society, he told Dr. Kress that he had carried insurance in two companies, but that one of the companies had hemmed and hawed so much, that he did not wish it to be represented in the defense. Not having any other knowledge of the facts, the editor wrote the above sentence, which, therefore, had no reference to the company which has sent out the circular letter.

There is nothing in the above statement "which severely censured the company in which Dr. Smith carried his physician's liability insurance," which the manager, as per his statement in the second paragraph, would have one believe.

It is true that the editor of the Bulletin refused to print a complimentary notice of this private company, because the Bulletin stands, first of all, for the State Medical Society, and if it can do so, it intends to ignore private malpractice companies which give malpractice defense for the money there is in it for them, whereas the State Medical Society stands for malpractice defense of all its members for the purpose of preventing blackmail.

It would be utterly foolish to think that this Bulletin of a county unit of a State Society was going out of its way to compliment private companies on the efficiency of their malpractice defense, when the State Society is of the opinion that the malpractice defense which it offers is equally as ample and efficient.

2. To quote the second point in our February item: "The burden of the defense rested on the attorney for the Medical Society for the State of California."

We will not discuss this point other than to state that the Medical Society for the State of California paid the attorney fees of Mr. Newlin, who, largely, at our request to the State Secretary and Board of Councilors, was appointed the attorney for the State

Society and who was the chief attorney for Dr. Smith and who had charge of his case, these attorney's fees amounting to several hundred dollars.

It was agreed that the private company which sent out the circular letter was to pay the stenographer's costs, etc. In addition, it chose to have a representative present, but the major defense was in the hands of Mr. Newlin, who was retained and whose fee of several hundred dollars was paid by the Medical Society of the State of California.

3. Referring now to the last paragraph of the circular letter of the manager of the private company, in which the editor of the Bulletin of the Los Angeles County Medical Association is accused of unfairness in refusing to print a statement to the effect that the malpractice defense of this private company which assisted in the defense was efficient, we would state the following as among our reasons for so refusing:

The original comments of the editor were not aimed at this private company and did not mention its name directly or indirectly, nor was this private company in the mind of the editor when he made the comment about the queer action of one of the private companies already referred to. The editor had in mind the other company in which Dr. Smith thought and said he had a policy.

Dr. Smith acknowledged to the editor that the original statements as published in the Bulletin were correct, as Dr. Smith had told them to Dr. Kress. It was not until about March the 14th, some weeks after the suit had been decided and the item above had been printed, that Dr. Smith told Dr. Kress that his policy in the company, which had acted queerly, had lapsed; adding, however, that neither he nor the company seemed to be aware of the fact, in their first correspondence about the suit. (So that the criticism was evidently not unjust, after all.)

As the names of neither of the private companies had been mentioned in the city newspapers and as the editor of this Bulletin did not know the names of these companies, the editor could not feel that any gross injustice had been done to either one or the other and felt justified in refusing to print an announcement concerning this company in this Bulletin.

The entire request of this private company seemed to be a cheap attempt to get a free testimonial for efficiency in the official bulletin of this Association, to be used in scaring members into taking out policies in its company, and this seems to be borne out by the circular letter, which seems to be pretty much that sort of a proposition.

Granted, however, that some injustice had been done to a private malpractice company, by indirection even, the editor would still feel justified in having printed the February item for the good and sufficient reason that he believes that the malpractice defense of the State Medical Society is absolutely efficient and that the State Society has acted with great dignity and forbearance in the last several years, during which time the policy solicitors of these private companies have lost few opportunities to give the impression that the malpractice defense of the State Society was a sham and would be worth but little in actual test. (The part of the State Society played in the Christie vs. Smith suit, shows beyond doubt that the State Society means business.)

The secretary-editor of the Los Angeles County Medical Association had the honor at San Jose two years ago, of introducing the resolution that brought malpractice defense by the State Society into being, and as a member of the Board of Councilors of the Medical Society of the State of California, he knows that the men of that board intend to raise all the money necessary to make malpractice defense by the State Medical Society absolutely efficient. The State Society of California is big enough and strong enough and has enough loyal members to successfully carry through any work it undertakes. Those

members of the State Society who have any doubt on this subject show how little they understand the purpose of the State Society in this work.

The editor still believes he was justified in refusing to print in the Bulletin of the Los Angeles County Medical Association a statement which would give complimentary mention to a private malpractice company. The Bulletin of the County Medical Association is not run for profit. The secretary-editor gives his services to the Society as a labor of love. He is absolutely committed to the development of the county unit and of the State Society. He believes absolutely in the efficiency of the malpractice defense by the Medical Society of the State of California, and he does not intend, while he is the editor of this Bulletin, to allow any one of these private malpractice companies to get a free advertisement in this Bulletin for efficiency in malpractice defense, which such advertisement would at the same time cast a slur on the efficiency of the malpractice defense of the Medical Society of the State of California.

He stands on his original statements concerning our State Society malpractice defense, given on more occasions than one in this Bulletin, and urges the members of this Association to have full faith in it. If any members wish, in addition, to carry malpractice defense in private companies, that is their own personal privilege, but he still believes it would be a more altruistic act to donate that premium of \$10 or \$15 to the building fund of the Los Angeles County Medical Association, so that it might go to the development of this Society which protects the interests of every one of us, rather than to a private company to increase the dividend returns on the stock of a private company.

We ask the forbearance of the readers of this Bulletin of this Association in this rather lengthy statement. We believe that all who stand for the highest development of the State and County Society and who are familiar with the facts in this particular case, will agree that no injustice was done, except as a distorted and commercial viewpoint created such an injustice in the mind of the manager of the company, who saw, perhaps, an opportunity to get what he thought was a good advertisement for his company. Very well, he has gotten his publicity and he is welcome to what he can get out of it.

So much for the present. We have only to add, however, that while the present secretary is editor of this Bulletin, there will be no complimentary notices in favor of private malpractice companies and at the expense of the State Society, unless the editor is first chloroformed.

We trust this will end this unfortunate incident. In view of the misstatements in the private company's circular letter, the interests of the Society demanded that the members of this Association should know the facts as the secretary-editor understood them, and he has accordingly written the above.

G. H. K.

(Bulletin of the Los Angeles County Medical Association.)

#### SUMMER COURSES FOR PHYSICIANS.

The summer session of the University of California will offer this year, as a Department of Medicine, several courses intended primarily for physicians, health officers and medical students. Four of the courses offered in the Department of Hygiene, although not requiring a training in medicine as a prerequisite, are planned to satisfy the demands of health officers, medical inspectors of schools, teachers interested in public health, and physicians desiring to renew acquaintance with elementary bacteriology. Over 150 other courses covering a wide range of subjects give abundant opportunity for assembling groups of courses to suit individual tastes and needs.



The courses specially referred to are:

Medicine 1. Laboratory Course in Clinical Diagnosis. W. A. Sawyer, M. D., Director of the California State Hygienic Laboratory.

Exercises and demonstrations in the examination of blood, exudates, sputum, gastric contents, stools, and urine for practical diagnostic purposes. Emphasis will be placed on laboratory examinations important to health officers.

Medicine 2. Morbid Anatomy and Histopathology. G. Y. Rusk, M. D., Assistant Professor of Pathology.

A practical study of tissue changes illustrating disease processes. Examination of gross and microscopic specimens. Autopsies when material is available. Methods of tissue preservation will be shown.

Medicine 3. Newer Therapeutic Methods. E. S. Kilgore, M. D.

Lectures on the more recently discovered non-surgical methods of treatment and critical discussions of their value.

Hygiene 1. Public Health. J. N. Force, M. D., M. S.

Epidemiology, labor protection and sanitation, sanitary architecture, refuse disposal, water supply, food supply and sanitary law. Field assignments. Conferences.

Hygiene 2. Child Conservation. J. N. Force, M. D., M. S., Lecturer in Hygiene.

School health departments, school sanitation, medical inspection, school nursing, social service. Physical defects of school children. Physical education. The teaching of hygiene. Field work. Conferences.

Hygiene 3. Laboratory Demonstrations in Hygiene. Margaret Henderson, B. S., Instructor in Bacteriology.

(a) Public health. Water and milk examinations, investigation of foods, sewage disposal and water purification; the bacteria causing infectious diseases; the principles of transmission of these diseases and methods for their control; methods of disinfection.

(b) Laboratory Methods in Teaching Hygiene. Experiments and demonstrations suitable for use in presenting the principles of public health to pupils in graded schools.

Hygiene 4. Elementary Bacteriology. Margaret Henderson, B. S.

A laboratory introduction to bacteriology. Methods. The relation of bacteria to common industries.

Along lines less intimately related to medicine the following subjects will be attractive to physicians:

Philosophy 4. Psychological Laboratory. Warner Brown, Ph. D.

Education 206. The Psychology and Training of Adolescence. Richard G. Boone, Ph. D.

Anthropology 1. General Anthropology. Thomas T. Waterman, A. B.

Zoology 1. A Biological Presentation of the Problem of Sex and Reproduction. J. Frank Daniel, Ph. D.

Zoology 103. Embryology. J. Frank Daniel, Ph. D.

Physical Education 22. Therapeutic Gymnastics. E. C. Beach, M. D.

The session begins on June 26 and closes on August 5, 1911. A bulletin describing the courses in detail will be mailed on application to the Dean of the Summer Session, California Hall, Berkeley, California.

Reduced rates of one first-class round trip at the rate of a fare and a third are offered by the Southern Pacific and the Atchison, Topeka and Santa Fe Companies to attendants of the Summer Session from all points of California.

Physicians who are unable to leave their practices for the full six weeks of the Summer Session will

find it possible to arrange with certain of the instructors to take parts of their courses.

CHARLES H. RIEBER,  
Dean of the Summer Session.

## DEPARTMENT OF PHARMACY AND CHEMISTRY.

FRED I. LACKENBACH.

### "Patents" in Disguise.

The following is a partial list of proprietary preparations which are designed to mislead the public by appearing in the reading columns of newspapers as favorite domestic remedies. They enter into domestic prescriptions the other items of which are well known to the laity—such as sarsaparilla, dandelion, buchu, etc., the impression being conveyed that the "rider" is also a common household remedy.

One of the first of these to appear was Compound Kargon for Rheumatism. It was associated with Fl. Ext. Dandelion and Co. Syr. Sarsaparilla. The Kargon comes in bottles of about one ounce capacity and with the other ingredients measured up to about five and a half ounces, which commanded seventy-five or eighty-five cents. There was such an enormous demand for this "prescription" that for a time the supply of six ounce prescription bottles was inadequate to the demand. One of the products advertised as an ideal skin-food prescription was condemned by the Federal authorities under the Pure Food and Drugs Act. It was simply Epsom Salt colored pink, a four-ounce package selling at fifty cents.

It is truly marvelous the number of people who "bite" on this bait, the victims being confined to no one class or degree of intelligence.

Druggists are made unwilling parties to the deception, as it obliges them to stock these uncertain goods of which there is such a variety. If they do not stock them or attempt to explain to the patron the nature of the combination, the patron is more often inclined to question the veracity of the druggist or consider his stock incomplete.

	Dozen	For
Amarol	\$ 6.00	Complexion Cream Lotion
Almazoin	4.00	Complexion Jelly
Balmwort Comp.	4.00	Kidney, Bladder, Etc.
Barkola	4.00	Kidney, Bladder, Etc.
Beta Quinol	4.00	Hair Tonic
Biosol	9.00	
Bislac	4.50	Dyspepsia
Beta Canthol	6.00	Hair Ton. & Scalp Cleaner
Boro Lister	6.00	Antiseptic Solution
Borothol	6.00	Eczema
Cardiol	4.00	Dyspepsia & Constipation
Canthrox	4.00	Shampoo
Cadomene, Tr.	7.20	Nerve Tonic
Crystos	4.00	Eye Remedy
Capthol	6.00	Dry Shampoo Hair Tonic
Cerol	6.00	Massage Cream
Catandir	4.00	Dyspepsia
Delatone	7.00	Depilatory
Delol	6.00	Depilatory
Eggol	4.00	Shampoo Powder
Eppotone	4.00	Complexion, Lotion
Flowers Oxzoin	4.00	Skin Lotion
Gallol	12.00	Bust Developer
Glycol Arbolene	6.00	Obesity
Hypo-Nuclane Tabs.	7.20	General Debility
Kargon	4.00	Rheumatism
Kardene	4.00	Blood Tonic
Kulux	4.00	Face and Skin Powder
Luxor	4.00	Eczema Cure
Maizene	6.00	Kidney Remedy
Mentho-Laxene	6.00	Cough and Cold
Marmola	4.00	Fat Reducer
Marmola Tablets	6.00	Fat Reducer
Mayatone	6.00	Skin Remedy
Parnotis	4.00	Flesh Reducer
Prosene	4.00	Dyspepsia and Indigestion
Protone	8.00	Flesh Builder

Quintone	6.00	
Quinzoine	4.00	Hair Tonic
Rose Kayloin	4.00	Unguentine Mixtures
Spurmax	4.00	Face Lotion
Sulpherb Tablets	4.00	Lax. Blood Remedy
Sarsene	4.00	Blood Remedy
Sartoin	4.00	Skin Food
Therox	6.00	Dry Shampoo
Toris Root	4.00	Rheumatism
Trioceptine Tablets	4.00	Dyspepsia
Vilane Powder	4.00	Antiseptic & Disinfectant
Yellow Minyol	7.20	Antiseptic & Disinfectant

### AN UNFORTUNATE LETTER.

To the Editor of the State Journal:

I was called to attend Mr. A. F. Bridge at the Olympic Club on January 29, 1911. I found him suffering from a fracture of the outer third of the right clavicle. I reduced the fracture and put it up in a permanent dressing; I sent him to his regular physician, Dr. Voorsanger, and also instructed him to have an X-Ray examination to see if the fragments were in position. On January 31 I received a telephone message from Dr. Voorsanger stating that he had had an X-Ray taken of A. F. Bridge's clavicle and found it absolutely in position and that he did not intend to disturb the dressing; he also advised me to send my bill to A. F. Bridge.

Being a fellow club member, I waived the usual fee and sent him a nominal bill for \$15.00. Under date of February 3d, I received the following preposterous letter from A. F. Bridge; (vide infra). I then wrote to the president of the company, and received a letter which I also append. I request that this matter be given publicity in the Journal.

Respectfully,

J. GREEN, M. D.

The Travelers Insurance Company.

Dr. J. Green,  
323 Geary Street,  
San Francisco, Calif.

Dear Sir:

I am enclosing you herewith check No. 982 on the International Banking Corporation of this city for fifteen dollars (\$15.00) in payment of your bill enclosed herewith which please receipt and return to me.

The shock due to the fall and consequent collar-bone fracture was trivial to my noting the amount of this bill. A dollar a minute is certainly putting the medical profession in the J. Pierpont Morgan class and I think I will have to congratulate you on being one of the first to enter. But, may the Lord have mercy on those people for whom you are acting as family physician.

Very truly yours,

A. F. BRIDGE,

Per K.

Manager.

AFB/AB.

March 7, 1911.

Dr. J. Green,  
323 Geary Street,  
San Francisco, California.

Dear Sir:

A copy of an article published in the February 23d issue of the San Francisco Call has reached this office and has been referred to me.

I regret very much that Mr. Bridge should have written you such a letter as he did. Immediately upon receiving it I wrote him criticizing the use of the company's stationery in conducting a personal controversy, and upon reflecting further upon the incident I have written him again expressing my disapproval of the position he has assumed.

It is most unfortunate that the name of the company should have been involved in such an incident and that one who represents it in a responsible position should have displayed such evidence of intemperate haste.

Very truly yours,

President.

### NOTICE.

Members of the Medical Society of the State of California, and others who may have had personal experience in the operative treatment of aneurism by the intra-saccular method of suture (Endoaneurismorrhaphy, also known as the "Matas operation"), will confer a favor by notifying the secretary, or by communicating their experience directly to Dr. R. Matas, 2255 St. Charles avenue, New Orleans, La.

### THE WAYS OF THE QUACK.

The following, written by a man claiming to be a doctor, but really not licensed to practice anything in this state, is interesting in that it shows the amount of ignorance that can be put out in the guise of medical opinion, and the amount of awful bosh that some people will accept when so presented to them. The letter was written to help Mr. Blank beg money to be paid to "Dr." Naumann:

To Whom It May Concern:

I hereby certify that I have Mr. Blank of Blank, since December, 1910, under treatment for blindness caused by hemorrhoids and an accumulation of cancerous matter in the rectum. To cure it will take about six months and the cost will be \$20.00 a week which is due as soon as Mr. Blank is able to see and go around without any assistance.

DR. WM. NAUMANN,

Monte Rio, Cal., Feb. 25, 1911.

### NEW MEMBERS.

Rogers, H., Bakersfield.  
Lueschen, A. G., Bakersfield.  
Buchner, G. H., Bakersfield.  
McNamara, T. M., Bakersfield.  
Fraser, A. I., Bakersfield.  
Kellogg, C. W., Bakersfield.  
Nelson, T. J., Los Angeles.  
Shaul, J. W., Santa Ana.  
Lowell, C. H., Los Angeles.  
Owen, J. L., Los Angeles.  
Peterson, Anders, Los Angeles.  
Ray, L. E., Los Angeles.  
Shattuck, G. S., Los Angeles.  
Thompson, W., Los Angeles.  
Andrews, Howard, Hollywood.  
Andrews, H. J., Hollywood.  
Coulter, H. M., Pasadena.  
Markolf, H. F., Pasadena.  
Harvey, C. W., Anaheim.  
Wood, C. H., Glendora.  
Trevalyn, G. H., Arlington.  
Tourtellott, W. W., Lindsay.  
Hornor, D. H., Alpaugh.  
Bransford, S. G., Suisun.  
Davis, Bret, Merced.  
Huntley, A. C., Booneville.  
Bullard, C. T., Los Angeles.  
Brimhall, S. J., Los Angeles.  
Byron, R. L., Los Angeles.  
Edwards, S. G., Los Angeles.  
Frates, F. E., San Francisco.  
Wicherski, O. G., San Francisco.  
Bothe, A. S., San Francisco.  
Breitstein, L., San Francisco.  
De Lucis, C. A., San Francisco.  
Naffziger, B. C., San Francisco.  
Hildreth, H., Delano.  
Heley, Levi St. John, Madera.  
Zirker, D. W., Bakersfield.  
Crease, H. G., Bakersfield.

### DEATHS.

Cates, Horace G., Los Angeles.  
Hill, R. L., Sr., Oakland.  
Vaux, E. H., Santa Cruz.



# California State Journal of Medicine.

Owned and Published Monthly by the

Medical Society of the State of California

PHILIP MILLS JONES, M. D., Secretary and Editor

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## IMPORTANT NOTICE!

All Scientific Papers submitted for Publication must be Typewritten.

Notify the office promptly of any change of address, in order that mailing list and addresses in the Register may be corrected.

VOL. IX

JULY, 1911.

No. 7

## EDITORIAL NOTES.

As the annual meeting of the American Medical Association convenes the day this number of the JOURNAL goes to press, it is not possible to publish any matter relative to the meeting in this issue. At the time of writing, however, there is every prospect that the meeting will be largely attended and that the California members will be there in considerable numbers. The program, as outlined in the *Journal A. M. A.*, is an exceedingly good one and should provoke much enlightening discussion. To the Committee of Arrangements is due much praise and our sincere thanks for the way in which the details that make so much for the comfort and convenience of those attending a convention of any sort, have been looked after and thoughtfully studied out. It is no small job to arrange for the smooth running of a convention of this magnitude and the comfort of those in attendance. Our thanks and our congratulations to our colleagues of Los Angeles.

Collections of medical men in societies will discuss in heated argument, and pass resolutions against abuses—which they then proceed to forget most promptly; or to ignore as though forgotten. At the meeting of the American Medical Association in Portland, 1905, some resolutions were intro-

duced into the House of Delegates by the representative from Michigan, which State Medical Society had previously adopted these resolutions. They denounced the proprietary medicine frauds and called upon the Association to "do something" to stop the then existing condition of things. It was at this same time that the Council on Pharmacy and Chemistry of the American Medical Association had its beginning. One would naturally suppose that, having considered the matter, passed resolutions about it and then officially called upon the American Medical Association to "do something" to clean up the proprietary mess, Michigan would be one of the very strongest states in its support of the Council on Pharmacy and Chemistry and of the campaign for decency in medical journal advertising. But alas for our hopes! Michigan is willing to pass resolutions; that costs nothing. But Michigan does not seem willing to exclude or to do without advertising matter of an objectionable sort. The last number of the *Journal* published by the Michigan State Medical Society (June) contains the advertisements of the following choice specimens: bovine; glycothymoline; sulfothen, thyosal (with some wonderful properties!); Fellows' hypophosphites; ergoapiol; salhepatica; and our old friend, "Daniel's passiflora." The dignified and ancient-of-years Medical Society of New Jersey, permits the advertisement of glycothymoline in its official publication, as does the Kansas Medical Society—and Kansas also allows its *Journal* to print the advertisements of antiphlogistine and katharmon. South Carolina permits its official publication to advertise these nostrums: Gray's glycerine tonic; glycothymoline; antiphlogistine and gastrogen. Minnesota goes still further in its aid to the nostrum maker and advertises apioline; glycothymoline; ergoapiol; antiphlogistine; echitone; peptomangan; salhepatica and colchisal. Oklahoma varies the monotony by advertising neorose; Tyree's powder, and germiletum. Ohio has ergoapiol; glycothymoline; Grey's tonic; Fellows' hypophosphites and peptomangan. Needless to say, none of these preparations has been approved by the Council on Pharmacy and Chemistry of the A. M. A.

Why do these state medical societies support the Association's work in fighting nostrums and fraudulent proprietary preparations through the Council, and at the same time fail to support that work at home by accepting such nostrum advertisements for their respective official publications? It is indeed a question. It seems such an absurdly anomalous position, especially for a learned society. It has come to be a recognized and a fixed proposition that the advertising medium is, in large degree, responsible to its subscribers for the character of the advertising which it presents to them in its advertising pages. No publication of

any standing would think of denying that responsibility; many of them, like *Collier's* and the *Ladies' Home Journal*, take pride in it and brag about it. Are the publications of these state medical societies any less reputable than private publishers? Should they be any less honest in looking after the interests of their subscribers? It is not possible to answer these questions in the affirmative. Then why do they publish such advertisements? It cannot be through ignorance, for a letter addressed to the Council would at once dispel the ignorance. Can it possibly be that societies of this character are willing to sell out for the dirty dollars of the nostrum maker? Perish the thought! It must be ignorance.

A number of physicians have complained of the activities of the Board of Pharmacy in administering what is known as "section eight of the poison law." This **WARNING TO PHYSICIANS.** portion of the law regulating the sale of poisons is a very important one to physicians. It specifically says that

"It shall be unlawful for any practitioner of medicine, dentistry or veterinary medicine to furnish to or to prescribe for the use of any habitual user of the same, any cocain, opium, morphin, codein, heroin or choral hydrate . . . provided, however, that the provisions of this section shall not be construed to prevent any duly licensed physician from furnishing or prescribing in good faith for the habitual user of any narcotic drugs who is under his professional care, such substances as he may deem necessary for their treatment, when such prescriptions are not given or substances furnished for the purpose of evading the purposes of this act."

The section seems to be unusually clear in its wording and plain in its meaning. A physician may prescribe for a drug habitue who is his patient, in good faith, a sufficient quantity of his drug. The prescription must be written in good faith; it must be for one who is the actual patient of the physician. It does not mean that any doctor may write one or more prescriptions for morphin for anyone who comes into his office and makes a strong plea for it. It does not mean that a doctor may sign a hundred or more prescriptions in blank and leave them at some drug store so that the pharmacist may sell the stuff under the protection of a "prescription"—and then divide with the dishonest doctor. Shocking as it may seem, this has actually been done by a licensed physician in this state, and a member of his county medical society. Some men seem to think that their rights or privileges have been invaded by this poison law; they have not; any physician has as much right to prescribe or give morphin, cocain, chloral, etc., honestly and legitimately as he ever had. It is claimed that detectives from the Board of Pharmacy have come into doctors' offices, told heartrending tales, and been given prescriptions which were afterward used in evidence against the doctor. This may or may not be true, but it certainly is true that in nearly, if not quite every case

where a physician has been arrested under this law, he has plead guilty and paid his fine. The Secretary of the Board of Pharmacy advises us that they never make an arrest on a single violation of the law; it is only when one of their inspectors has obtained several prescriptions for one or other of the proscribed drugs, that arrests are made. It is also true that a good many physicians are far too careless in believing what they are told and in giving prescriptions for narcotic drugs. Then there is another class that is composed of dishonest physicians; they sell prescriptions of this sort for a price; sometimes they sell the drug itself—one licensed physician in the South made a living solely by selling morphin and cocain to habitues. Truly, a nice occupation. Remember the poison law and do not be inveigled into violating it by the hard-luck story of some one who is not your patient.

To say that cheap work is poor work is but another way of phrasing the Biblical statement that "the laborer is worthy of his hire." If he is not, then is he **CHEAP WORK POOR WORK.** a mighty poor laborer and unworthy of any hire. In this world (whatever may be the case in others) one gets just about what he pays for; "something-for-nothing" is a beautiful dream. All of which is apropos of a card announcing, on one side, the location of the "Pacific Wassermann Laboratories," and on the other giving a scale of prices for various forms of laboratory work. This "laboratory" is, we are advised, operated by an ex-hospital steward and another whose term of enlistment has not expired. The prices quoted are absurd; they would make a competent man blush. "Wassermann test, \$5.00. Widal, \$1.00. Urine, chemical and microscopic, \$1.50. Feces, for typhoid bacillus, \$3.00. 606 prepared, \$2.00." And so on down the list. It is obvious that if some physicians did not patronize these cheap people, they could not pay office rent and have cards printed. And yet it is difficult to imagine what sort of physician would place any dependence upon the reports from men who are probably trained only in the routine work of preparing material for examination but, without medical education or experience, could not possibly be competent to give an opinion of any real value on their findings. One can but pity the case of the patient who places himself in the hands of a physician who will, in turn, place his own reputation and possibly the future of his patient, in the hands of such cut-rate gentry. Cheap work is poor work.

In spite of all that has been said or can be said in favor of a sane Fourth of July celebration, there will be, if not always, at least for **TETANUS ANTITOXIN.** a long time to come, a certain number of idiots who will shoot or wound themselves or others in their desire to make a noise on that day. It is a well recognized fact that tetanus is quite apt to occur after gun-shot or toy-pistol wounds, and it is also recognized that the prophylactic use of tetanus antitoxin is greatly reducing the death rate



from this disease. All manufacturers of this antitoxin are now making reliable preparations and are getting them out in time for use in the treatment of injuries attendant upon the crazy Fourth. In every case of gunshot or similar wound, the antitoxin should be used immediately as a prophylactic measure; it is pretty cheap insurance against a most unpleasant infection—tetanus.

On another page will be found the list of the Lane Lectures for 1911, together with the subjects of each discourse and the date and

**THE LANE LECTURES.**

hour. As suggested in a previous issue of the *JOURNAL*, these lectures should be of special interest, not alone to the physician who is particularly interested in eye diseases, but also to the general practitioner and to the diagnostician. The treatment of the subject is such as to bring out forcibly the relation of the eye to the rest of the human economy in disease. There will be two lectures a day, one at 11 in the morning and the other at 4:30 in the afternoon, the first on August 21st and each day thereafter to and including the 25th.

If the *Journal* of the American Medical Association had done nothing more than to collect and compile the returns of accidents

**THE FOURTH OF—DEATH.**

and deaths as a result of the idiotic celebration of the 4th of July, it would have enough excuse for the high position which it holds. Year after year children were injured, burned, maimed or killed as a result of accidents from firearms, etc., and while everybody knew that this was so, more or less, nobody paid any particular attention to it. Until the returns for the whole country were gathered together by the *Journal*, the ghastliness of the needless slaughter was not forced upon one. For some years past, the *Journal* has, each year, presented the net cost in life and health of the old-time noisy firecracker, toy-pistol celebration of the 4th of July, in a way to attract the attention of anyone who thinks; and a good many people have thought about it. The "sane fourth" idea is gaining in popular esteem and more and more communities are excluding the deadly toy-pistol and similar devices for making a senseless noise—and doing a great deal of harm. The credit for this progressive popular move should be given where it is rightly due—to the *Journal* of the American Medical Association.

Is the manner in which we handle those who are mentally deranged, sane or insane? It certainly is not human! For years Dr.

**SANE OR INSANE?**

Hoisholt and others have pointed out, in papers read before various county societies and before the State Society, the inhuman and almost criminal manner in which insane patients are treated under the laws of California. It may be said that the condition in California is no worse than in almost every other state. From time to time the State Society has passed resolutions on the matter. The Texas State Medical

Association, at its last meeting, passed resolutions on the same subject and it is evident that equally brutal conditions prevail in that state. But what can we do about it? It is a matter of politics. At the present time sheriffs and deputy sheriffs are charged with the care of insane persons and the bringing of them to the state institution. They get fees and mileage for this work—and every little bit helps. One way of spelling the kind of politics that we ordinarily get is "votes." All of these gentlemen are in politics; each one of them commands a certain number of votes or a certain influence in his district. He does not want the present system changed, for then he would lose his fees and his mileage. The state hospital nurse, who should be sent to take charge of the patient and bring him quietly and properly to the institution, is not in politics; has no command of votes or influence; cannot have much persuasion upon the legislator. And with the legislator it is mostly votes that count, not abstract principles of right or wrong. Passing resolutions in California or in Texas is a harmless pastime that disturbs no one; and also, it has no effect; votes count. What can one possibly expect of a legislature that will actually pass a bill rewarding any one who has successfully broken the laws of the state for fifteen years? What humanitarian advancement can one expect at the hands of a legislature that will go back into the middle ages and attempt to do away with vaccination? Legislating is a gentle and joyous pastime—but votes count, not resolutions or principles.

With the increasing use of salvarsan, we now find scattered through the literature many reports of cases

**SALVARSAN, NEW INDICATIONS.**

where various sorts of disturbances and even deaths have followed its injection. These reports might lead to an exaggerated fear of this, our most effective anti-syphilitic drug, were they not subjected to most careful analysis and study. In a recent issue of the *Journal A. M. A.*, Schamberg has investigated the cause of inflammation of cranial nerves following its use. He finds that on the whole, these neuritic (most commonly optic and auditory) complications are not frequent, possibly no more so that after the employment of mercury. They have been encountered almost exclusively in cases of recent lues, and have yielded to either a second injection or to mercury and iodid. None have been reported after the intravenous administration of the drug. In advanced degenerative processes of the central nervous system, and in marked cachexias, salvarsan is apt to produce death; in fact, this is so well known, and universally acknowledged, as to require no discussion. Such reports are common, and no doubt there are still more deaths which most authors will prefer not to put on record. In the *Munchener Medizinische Wochenschrift* of May 16th Martius reviews, at the request of Ehrlich, the deaths after salvarsan in cases of cardiac and vascular disease. Of all known fatalities, but 7 can be attributed to the action of the drug upon the heart. In 5 of these, post mortems revealed the presence of the triad:

luectic aortitis, coronary sclerosis and myocarditis, so that the first, complicated by any form of cardiac disease absolutely contraindicates the employment of 606. In 4 of the 7 fatal cases there were no clinical evidences of cardio-vascular changes; in 3 of these 4 cases subjective troubles likewise were absent. Angina pectoris, without myocardial complications, is apparently favorably influenced by salvarsan. This last opinion is contrary to Ehrlich's earlier view. In Ehrlich's early publications, salvarsan was said to be contraindicated in nephritis, albumin, hyalin and granular casts and red blood cells having been found occasionally after its use, in previously normal urines. Nephritis occurring soon after syphilitic infection or during the course of the disease, was formerly often attributed to the mercury the patient had taken. But it has been definitely shown that a large number of these cases are due to toxins of syphilis acting upon the renal tissues and that lues can produce almost all anatomical types of acute or chronic nephritis. Furthermore, a number of these cases improve under mercurial treatment (in marked contrast to non-luectic nephritides which are always aggravated by it), but on the other hand, some are uninfluenced and a few are unfavorably affected thereby. To date, in none of the cases have *treponema pallida* been found in the urine. During the past months, salvarsan has been tried in cases of luectic nephritis. Lesser, Michaelis, Gaucher, Duhot, Nador, Widal and Javal have had very encouraging results. Caussade and Regnard report a severe case where the patient's death occurred "in spite of" and not "due to" its administration. While it cannot be claimed, once and for all, that this new drug is absolutely harmless in patients with diseased kidneys, or uniformly efficacious in renal syphilis, it should certainly be employed more extensively in these cases than in the past. A careful anamnesis should be taken, and a thorough physical examination performed before deciding in any given case to resort to the use of 606. Thus only can disaster be averted, and knowledge be obtained as to the real effects of this drug upon the human organism. The intravenous administration is the only method to be recommended. Solutions should be prepared at the time of injection and be "just alkaline," hyperalkaline ones exerting a pernicious action upon the vein and the blood. (J. Darier et Cottenot.)

R. B.

Recent reports of new diagnostic signs in scarlet fever again prove that progress in diagnosis can still

#### DIAGNOSIS OF SCARLET FEVER.

well as from laboratory observation and research. At the height of the disease typical cases offer no difficulties, but with fleeting symptoms, or with eruptions that have already run their course, or with eruptions due perhaps to other causes, most difficult problems are presented to the attendant. Even in severe cases the desquamation may be slight or not more than that usually seen in patients who have been for some time confined to the bed. In our June issue, Taubles reports having verified the observations of Pastia of Bucharest in 18 cases of scarlet fever. Pastia's sign consists of an

intense, continuous, linear pigmentation of the skin-folds across the anterior surface of the elbow, varying in color from rose red to dregs of wine and even appearing ecchymotic. This sign appears with the onset of the rash and persists even later than the desquamation. Leede of Hamburg has described another sign. A broad rubber bandage is moderately tightened about the arm, so that the veins are made prominent and the hands blue, but allowing the pulse to remain palpable. At the end of 10 to 15 minutes it is removed and the skin at the bend of the elbow closely inspected for the presence of a few tiny ecchymotic spots. He concludes that the capillary resistance varies in different persons, but that the toxins of scarlet fever evidently, with few exceptions, lower this resistance. A negative reaction practically excludes the disease; a positive one is, of course, to be interpreted only in conjunction with the other symptoms, as has been emphasized by Bennecke. Furthermore, Frugoni and Giugni have described a somewhat similar test in cases showing cutaneous manifestations of a hemorrhagic diathesis. Scarlet fever heretofore could boast of no pathognomic sign or symptom. We would like to urge all observers to search carefully for these new signs, not only in scarlet fever cases but in all eruptive conditions, so that their value may soon be established beyond all doubt.

R. B.

#### THE CALIFORNIA ASSOCIATION OF MEDICAL MILK COMMISSIONS.

For two years there has been held in connection with the meeting of the State Society and at the invitation and expense of the San Francisco commission, a meeting devoted to the consideration of a pure milk supply. These meetings were so profitable and interesting, and the certified milk industry has now reached so high a development in California, that it has seemed wise to make these meetings an annual adjunct of the State meeting, and to federate the various commissions into a permanent state organization. Accordingly, there was formed at Santa Barbara the California Association of Medical Milk Commissions. The association is composed of the milk commissions of the County Medical Societies, and its purpose is to promote the use of certified milk and to assist in raising the general milk supply to a higher standard, by dispensing literature on this subject, by illustrated lectures, by public meetings, and by personal work among the profession, the laity, and the dairymen. Any County Medical Society interested in the formation of a milk commission may obtain literature, lantern slides, etc., from the association, and members will be delegated, on request, to visit societies which may desire assistance in this work, or to appear before clubs or other public bodies. It is believed that this work is of great importance, and it is hoped to awaken a wider interest in this subject among the profession and, through the physicians, among their patients. Dr. Adelaide Brown is secretary of the association, and will be glad to give any information to persons interested in this work.

T. C. McC.



## ORIGINAL ARTICLES

## THE EXPERIMENTAL BASIS OF VACCINE THERAPY.\*

By FREDERICK P. GAY, M. D., University of California, Berkeley.

It would be rash indeed to attempt to outline the potential value of vaccine therapy but one may sketch very clearly the historical path that has led to our present method of treating bacterial infections by injecting killed cultures of bacteria. When we later come to consider the rationale of this latest aspect of immunization, that is immunization employed as a therapeutic measure, we shall find ourselves stopping short of ultimate explanation embarrassed not at any failure of the laboratory worker to respond to clinical demand, but by the fact that practice has outstripped theory, and not it is to be feared to the ultimate benefit of practice itself.

The principle of artificial immunization as a measure of prophylaxis is as old as history and may still be found practiced empirically among savage tribes. As soon as a people begins to reason effectively from cause to effect they naturally attempt to create artificially the advantageous condition of acquired immunity which they see has resulted from recovery from a natural disease. The Moors protected their cattle from pleuropneumonia by inoculating them subcutaneously with diseased organs. The South African Vatus still practice a method of self-immunization against snake bite. The Chinese in early times found they were able to protect themselves from smallpox by inducing a mild form of the disease through placing scabs of variola in the nostrils. This protection by variolization was replaced in 1798 by Jenner's system of vaccination which made use of the novel but fundamental principle of producing immunity through a modified form of the disease.

It was this principle which with the advent of bacteriology, enabled Pasteur to utilize bacterial cultures of diminished virulence in protecting against fowl cholera and anthrax. The observations of Salmon and Smith with hog cholera proved that even killed cultures may be employed for the purpose.

Another and most significant advance in our knowledge of the possibilities of vaccination lay in the discovery of the method of preventing rabies. Owing to the long incubation period in the disease, Pasteur found that an active immunity might be induced by inoculations of rabies virus of increasing potency, if the treatment is inaugurated within fifteen to twenty days after the bite of a rabid animal. This treatment *following* inoculation makes the logical as well as historical step between vaccination for prophylaxis and vaccination in treatment.

The treatment of a disease in active progress by inoculation of the virus of the disease itself was first suggested by Koch in the tuberculin treatment for tuberculosis. Over-enthusiasm of many untrained observers as well as failure to appreciate the real principle involved led to a rapid discrediting of what represents a thoroughly logical though still imperfect method of treating this dread disease. The best observations to-day show that judiciously ad-

ministered treatment with tuberculin in conjunction with the usual hygienic measures distinctly increases the percentage of cures.

It remained for A. E. Wright, beginning in 1902, to emphasize and to enlarge the scope of active immunization as a method of treatment. Discouraged at the essential failures which were being met with in attempting to treat bacterial infections by passive immunization which had proved so effective in treating certain bacterial intoxications, Wright struck back to the trail which had been so successfully blazed by Pasteur. I shall not at this point criticize Wright's method of approach but may point out at once that his results were not only encouraging but in many points remain practically successful.

Wright's method of treating bacterial infections with killed cultures of the micro-organism concerned, is particularly and primarily efficient with localized lesions, both acute and chronic. The effect produced depends on provoking a generalized reaction of the body which re-inforces the purely local immunity in the tissue surrounding the lesion. The result is commensurate with an increase in antibodies that may be demonstrated in the blood of the patients themselves as well as the more firmly grounded data obtained from active immunization in experimental animals. The extension of this principle of vaccine therapy to the systemic bacterial infections like pneumonia and endocarditis is at once more doubtful practically and more difficult to explain. And at this point we may digress for a moment to criticize Wright's method of attack on this problem of which he has admittedly been the one to prove the importance.

The inauguration of the increasingly successful methods of protecting human beings by vaccination against cholera, plague and typhoid has depended directly on the animal experiments of Pasteur and of Pfeiffer. In the case of antityphoid prophylaxis we owe the best methods of standardizing the vaccine by means of its toxicity for guinea pigs, to Wright himself. And yet in the at best tentative development of vaccine therapy Wright practically omitted experiments on the lower animals and contented himself with experiments in human beings. I am not here concerned with this transition of method from the standpoint of morality so much as from the standpoint of scientific accuracy and expediency. It need scarcely be pointed out to you that animal experimentation offers the only possible method of acquiring the complete series of facts and any consequent deduction as to the cause of biological phenomena. As has just been mentioned the successful treatment of localized infections by vaccination can be explained in a general way *a posteriori* from previous animal experimentation. We know now, however, that Wright's misconception of opsonic activity has only recently been unraveled by careful experimentation in the hands of others who were less eager to offer diagnosis in a few individual cases than to attain to some knowledge of the general principle involved.

When we come then to ask ourselves what results we may expect from Wright's suggestion that we treat, let us say a case of acute endocarditis with inoculations of the micro-organism which is swarm-

\* Read at the Forty-first Annual Meeting of the State Medical Society, Santa Barbara, April, 1911.

ing in the blood, we find very few facts on which to base a belief. We find ourselves relying solely on what we think has happened in a few apparently similar human cases that have been treated in what we believe to be the same manner. Each one of these cases has been considered apart from any possible control as to what would have happened if no treatment had been given, and each case represents a condition of which we have only the barest conception even under the best conditions in a well-organized hospital. It is true that if we keep our courage up until a hundred cases more or less have done better or worse under this treatment, and if we have made the most minute observations on this series of cases, we may hope to draw some conclusions by comparing them with a similar number of cases treated in other ways and equally well followed. And even then if we find the treatment justified by the results, how may we hope to know from any exact knowledge of the mechanism of the reaction that takes place, how we should modify the treatment to make it more efficient? The plea then is that in applying an experimental method to human beings we should make haste slowly and be patient enough to learn something of the general principle involved, through animal experimentation, before we start to treat individual cases.

In this particular case the experimenter can say little as to the justification for treating a septicemia with bacterial vaccines. It is not easy to see how we can hope to justify it on the ground of provoking any more general reaction as is the case in localized infections. It may, however, be suggested as Smith has done, that the bringing into play of new and unused areas of reaction such as are employed in subcutaneous inoculations might give a reasonable basis of justification in trying this method of treatment.

I think I have sufficiently indicated to you that Wright's method of developing vaccine therapy seems injudicious, although it must be confessed that his popular method has stirred up a general appreciation of the importance of the principle involved. Let us hope that the discrediting of his more visionary ideas on blood coagulation and the opsonic index will not serve to detract from interest in his main thesis of vaccine therapy. In view of these strictures on Wright's method it may seem inconsistent to suggest a possible further improvement of vaccine therapy in human beings. The suggestion, however, is based on results obtained by the methods that have been evolved in active immunization of animals. It has been found that the highest grade of antibacterial immunity is produced by immunizing animals with living rather than with killed bacteria. It has further been found that the best serum to combat an infection like that produced by the bacillus of dysentery is produced by immunizing horses not only against several strains of dysentery bacilli but against the endotoxins of the bacillus. It would be quite feasible to treat human beings with living instead of dead cultures of bacteria at least in the case of those organisms which do not tend to produce generalized infections. We have instances of such inoculation with living cultures in the original and successful method of preventing cholera inaugurated by

Ferran. The use of endotoxins as well as whole bacteria would present no danger over the present method. It seems then quite probable from animal experiments that a more efficient therapeutic reaction to bacterial infections might be induced in human beings by the use of living instead of dead bacteria and by the use of endotoxins in conjunction with the bacterial bodies.

I have often wondered what the present state of mind of the clinician may be in respect to the accepted status of immunity from disease. Facts have accumulated so rapidly that they can scarcely be set in order by one who devotes his entire attention to the subject. The balance of evidence has swung between the cells and the body fluids, first Mechnikoff with emphasis on Phagocytosis, then Pfeiffer; Bordet and Ehrlich with accentuation of the humoral aspects, and last the newer viewpoint of Wright lying half way between, and, in reality, linking the two schools together. It seems to me that Wright with his opsonic theory, was a better harmonizer than he knew. Those bodies known as opsonins, which he insisted on with pardonable pride as *sui generis*, seem now to differ very little from the known antibodies (sensitizers or amboceptors) which were really anticipated by Metchnikoff under the name of "stimulins." Facts seem to be tending to prove that the apparently dual lysins evidenced principally in the test tube, may in the body exert their action as a single body combining the attributes of amboceptor, sensitizer and opsonin, and affecting the bacterium in such a way as to make it more readily devoured by the phagocytes which under normal conditions retain the digestive ferment (cytase, alexin, or complement) that is liberated into the serum under artificial condition. Phagocytosis, then, would be the ultimate and essential process, its completeness depending on the degree of sensitization or opsonization produced extracellularly by the antibodies which are the specific results of immunization. This simplified scheme is I believe consistent with the trend of investigations in immunity.

It would seem, in review, that I have been able to offer little help, except perhaps in the line of simplification and clarification, towards the experimental basis of vaccine therapy. The fault lies as I have said in that the experimental basis of vaccine therapy has been inadequate for a safe prognosis. There remains, however, I hope, no doubt in your minds as to the eventual soundness of the method. I have simply ventured to plead for more scientific conservatism in learning its mechanism as tending toward a greater usefulness.

### A CLINICAL VIEW OF VACCINE THERAPY.

By HERBERT C. MOFFITT, M. D., San Francisco.

In yielding hesitatingly to the request of the program committee to present in the few minutes at our disposal, the clinical side of the vaccine question my decision was determined by the fact, apparent from observation of the cases of many different men, that lax methods in the application and overenthusiasm in the use of vaccines would tend

\* Read at the Forty-first Annual Meeting of the State Medical Society, Santa Barbara, April, 1911.



naturally to their discredit. Many points in their clinical application are still undecided but it is possible now to formulate certain general rules in regard to preparation, dosage and time of administration. Since the Harvey Lecture of Sir Almroth Wright in 1907 the literature of the subject in our own country has grown extensively. An excellent series of papers by observers in different clinical fields may be found in the Transactions of the Congress of American Physicians and Surgeons, Vol. VIII, 1910. The résumé of Tileston or the more recent one of Stoner (*American Journal of the Medical Sciences*, February, 1911), may be mentioned. Major F. F. Russell has recently given an excellent address upon "The Control of Typhoid in the Army by Vaccination" (*N. Y. State Journal of Medicine*, December, 1910).

**GENERAL CONSIDERATIONS.** There has been much discussion as to the propriety of using vaccines in profound general infections but the brilliant results occasionally observed clinically have shown that with proper precaution their use should be strongly urged. Various theoretical reasons support the results of clinical observation. Kektoen and Carlson have shown that antibactericidal bodies are elaborated in the tissues and not in the blood. Park would emphasize that bacteria in the blood circulate with their antibodies and this may inhibit further production of antibactericidal substances; this would not hold true in the tissues. Theobald Smith has pointed out the possible local character of immunity-body production and has suggested the advisability of introducing vaccines into different tissues. Leary strongly supports the view of "the local character of many immunity responses" and advocates injecting vaccines into the muscles. Following the almost universal rule, I have preferred to inject subcutaneously, a convenient place being about the insertion of the deltoid.

**METHOD OF PREPARATION.** The procedure of Wright is well described in the article of Potter and Avery in *Hare's Modern Treatment*. There is a tendency at present toward sterilization at lower degrees of heat with shorter exposures, or to the use of chemical agents as carbolic acid or galactose in place of heat. "Bacterial proteins as well as others lose their specific character by exposure to high temperatures or by prolonged exposure to low temperatures" (Leary). Heating at 55° or 56°, certainly not over 58° for an hour should be advocated; Leishman is killing his typhoid cultures for preparation of vaccine used in the British Army by exposure to 53° for an hour. Weaver and Tunnicliff have demonstrated experimentally that a streptococcus vaccine, prepared by sterilization in 25% galactose solution produced a certain degree of immunity in rabbits while the vaccine sterilized by heat was inert. Vaccines certainly deteriorate with age and a good working rule is to reject all preparations more than 3 months' old.

**SPECIFICITY.** An autogenous vaccine is one made from the specific organism causing the infection in the individual case. It is always to be preferred to heterologous or "stock" preparations. In staphylococcus infections there is not so much objection to the use of stock vaccines as in the case of organisms

like the colon bacillus, pneumococci or streptococci which are subject to much variation through widely differing strains. Nearly all tuberculins are examples of stock vaccines and our treatment of gonorrheal arthritis must usually be carried out with stock preparations. Gilchrist has shown that the staphylococcus albus vaccine may replace the aureus without loss of efficacy.

**DOSAGE.** The method of standardization introduced by Wright is still employed but it does not pretend to any great degree of accuracy and moderate errors in dosage are therefore unavoidable. The number of bacteria to be injected must depend upon the nature of the infection, the virulence of the infective agent, and the resistance of the individual. In acute general infections with profound toxemia only small amounts must be given and the condition of the patient will alone determine the time and amount of subsequent doses. It must be remembered that the degree of immunity produced may bear no relation to the size of the dose, and that large doses in an exhausted organism theoretically may increase toxemia and hasten a fatal issue. There is an undoubted tendency toward reduction of dosage even in local infections without marked systemic reaction, although, on the whole the dangers of large doses have been painted somewhat too vividly. In a case reported by Leary 10,000,000,000 staphylococci were injected by mistake, collapse followed in a few hours but the patient quickly rallied after stimulation. In another individual the same amount produced no reaction at all. Tileston has drawn up a table of dosage based upon the results of many different workers.

	In local infections	In general infections
Staphylococcus	100,000,000-1,000,000,000	-
Streptococcus	5,000,000-200,000,000	5,000,000-25,000,000
Pneumococcus	10,000,000-200,000,000	20,000,000-50,000,000
Gonococcus	5,000,000-500,000,000	5,000,000-100,000,000
Bacillus coli	10,000,000-200,000,000	10,000,000-50,000,000

My own experience has taught me caution in beginning treatment with large doses even in chronic infections. I have seen severe pain in the affected kidney follow an initial dose of 20,000,000 colon bacilli. In an interesting case of chronic typhoid bone lesions, inoculation of 40,000,000 bacilli of an heterologous vaccine gave a severe local reaction followed by fever and pronounced malaise and prostration. On the other hand we occasionally fail to see benefit from small doses and obtain prompt improvement from large ones. Three years ago a man entered my service in St. Luke's Hospital after an illness of two months characterized by irregular fever with chills and sweats. Staphylococcus albus was obtained several times in blood and urine cultures. The disease ran a course of weeks with recurrent paroxysms of chills and sweats, irregular pyemic temperature, crops of purpura and variations in size of a large splenic tumor. Ordinary drugs, enemata of collargolum had no effect. During six weeks treatment with an autogenous vaccine in doses of 50,000,000 to 200,000,000 no definite results were noted but after the amount was raised to 600,000,000 and 1,200,000,000 improvement was rapid and only three injections of the larger amount were required. The man has remained perfectly well ever since.

**FREQUENCY OF ADMINISTRATION.** The opsonic

index as a guide to the size and frequency of dosage has not proved of practical value. It may help to determine the nature of an obscure infection or may guide the choice of vaccine in mixed infections. As a rule in acute infections the interval between inoculations should be short and the dose small. In chronic infections an interval of 4 or 5 days has seemed to me better than one of 7 or 10.

**STAPHYLOCOCCUS INFECTIONS.** There can no longer be any doubt of the efficacy of vaccines in the control of local staphylococcus infections. Reports upon the treatment of furunculosis and carbuncles have been almost uniformly favorable. Here as elsewhere autogenous preparations are best but good results may be obtained with stock vaccines. The average dose is 200 to 300,000,000 to be administered every four or five days. Incision, hyperemia induced by application of the Bier cups, dressings of the solution recommended by Wright, 5% sodium citrate with 4% sodium chloride are helpful accessory measures. Staphylococcus albus vaccines have proved of benefit in the treatment of some forms of acne, in syphilis, weeping eczema and other skin affections. Gilchrist has found that superficial acne yields most readily to albus inoculations but the nodular variety due to infection with bacillus acnes requires treatment with autogenous vaccines in small doses 3 to 5,000,000 gradually increased at intervals of 7 to 10 days. In the treatment of chronic sinuses, chronic otitis media or chronic sinusitis due to staphylococcus infection favorable results have been reported. The case of septicemia due to staphylococcus albus has been noted above and one case of recovery from general infection with the aureus (following cellulitis of the hand) has since been observed. In four cases of malignant endocarditis due to the aureus, treatment was begun late in the disease and had no apparent influence on the course of the infection to its fatal termination. Deaver, DaCosta and Pfeiffer reported four recoveries in five cases of staphylococcemia following pelvic abscess, renal abscess, septic endocarditis, abscess of the scalp, pyonephrosis. In three cases of severe toxemia following suppurative nephritis, phlebitis, appendicular abscess recovery was prompt in two cases. From one to six doses of 100,000,000 were required at intervals of 4 to 6 days.

**STREPTOCOCCUS INFECTIONS.** The variability of streptococcic strains makes treatment with stock vaccines, even though polyvalent, much more unsatisfactory than in staphylococcus disease. The more rapid spread of the infection and the more profound intoxication usually accompanying it, make control even by autogenous vaccines less satisfactory. Infected wounds, abscesses, empyema, puerperal septicemia, malignant endocarditis are the conditions the clinician will most often be called upon to treat. In erysipelas no very striking influence has been exerted by vaccines. I have seen two cases get well in about the usual time under treatment with autogenous preparations. It is a disease notoriously of variable virulence in different years and opinions as to efficacy of a particular method of treatment must be uncertain. Important work is being done in preventive inoculations against scarlet fever but it is

yet too early to say whether the method will prove of sufficient value to warrant general introduction. Smith (*Boston Medical and Surgical Journal*, 1910, CIXII, 242), has recently collected the literature on the subject. Weaver concludes from his work with streptococci killed by galatose that injections early in the course of scarlet fever do not prevent later streptococcal complications; subacute and chronic streptococcal complications of infectious diseases are sometimes favorably influenced; acute processes are as a rule unaffected. I have seen two cases of puerperal septicemia apparently marvelously cured by autogenous vaccines; in one case streptococci being cultivated from the blood. One injection of 50,000,000 was given in one case, three injections of 20, 60 and 100,000,000 were given at intervals of 4 days in the other. Leary (*Boston Medical and Surgical Journal*, 1909, CLXI, 741), reported a series of 47 cases with 4 deaths; Hartwell Streeter and Green (*Surgery, Gynecology and Obstetrics*, 1909, IX, 271), reported 18 cases in all of which recovery took place. The favorable result in puerperal cases is probably due to the fact that the chief infection is local and symptoms are due largely to toxemia. Interesting in this connection is the observation of Libman in the study of general infections arising from the complications of otitis media that bacteria disappear from the blood if the local condition is properly controlled. Less favorable results have been reported in the treatment of general streptococcemia though some apparently hopeless cases have been rescued. Da Costa treated two cases of malignant endocarditis and one case of general infection following cellulitis without effect. Wright in 1907 reported six cases of streptococcus endocarditis with 4 deaths. In the collection of Stoner out of 26 cases of acute ulcerative endocarditis 22 were due to streptococcus infection; of the 26 eleven were cured. Six cases of septic endocarditis and one case of streptococcus pyemia were reported by Gilman Thompson (*American Journal of the Medical Sciences*, CXXXVIII, p. 169). "In several of these cases polyvalent vaccines were employed, but without benefit, before homologous vaccines could be obtained, which latter proved effective." Three cases of malignant endocarditis and one of pyemia were cured. The dosage varied from 50 to 300,000,000 and injections were made sometimes on succeeding days, usually at intervals of 5 or 6 days. The writer has seen 2 cases of malignant endocarditis treated with autogenous vaccines in doses of 50 to 100,000,000 without benefit.

Perhaps in future better results may be obtained in streptococcal infections from vaccines sterilized at lower degrees of heat. Leary advocates short exposures to heat and Weaver employs 25% galactose solutions in sterilization with apparent increase in immunizing power. The dose of streptococcus vaccine varies with the severity of this infection. In general infections begin with 5 to 20,000,000 every 2 or 3 days, in local infections larger doses 20 to 50,000,000 may inaugurate the treatment. Subsequent doses of 100 to 200,000,000 may be given and the interval determined by the results on temperature curve and general symptoms.



**PNEUMOCOCCUS INFECTIONS.** Pneumonia, empyema, malignant endocarditis, the complications of otitis media, meningitis are the chief conditions here in question. Pneumococci, like streptococci, vary widely in different strains and autogenous vaccines should be employed. In pneumonia organisms can usually be recovered from the blood but Leary advises vaccines prepared from the sputum. My cases have been too few from which to draw conclusions. The vaccine has been administered every 24 or 48 hours in doses of 10 to 20,000,000 or, as advised by Leary 5,000,000 every 8 or 12 hours. The results reported by Leary (loc. cit.) and by Craig (*Medical Record*, 1910, p. 259), are remarkable. It must be remembered of course that we all see desperate cases of pneumonia, get well under indifferent treatment, and that the mortality from the disease varies greatly in different years. Occasional benefit has been seen from vaccines in pneumococcal empyema and the treatment should be tried in all cases with chronic sinuses.

**GNOCOCCUS INFECTIONS.** Dieulafoy has reported two cases of gonococcal septicemia caused by vaccine therapy; gonococci could be cultivated from the blood long after disappearance of symptoms. Miller reported one case cured, Eyre one improved, Irons three not affected. As a rule more is to be expected in the treatment of the chronic rather than the acute in the metastatic rather than the local manifestations of the disease. In the vulvovaginitis of children excellent results have been obtained by Hamilton, Churchill and Soper and others. Hamilton recommends injections of 50,000,000 every 5 days increasing gradually to 100,000,000 and repeating this maximum dose every 10 days. There can be no doubt of the value of the vaccine in chronic gonorrheal arthritis. It is often impossible to obtain an autogenous vaccine and stock preparations from different strains must be employed. The writer has seen definite benefit in a few cases. In recent infections begin with 20,000,000 and increase to 200,000,000 or 400,000,000 fairly quickly if no unfavorable local and general reactions are obtained, injecting every 5 or 7 days. In chronic cases larger doses 500,000,000 to 800,000,000 may be necessary before improvement is noted.

**TYPHOID BACILLUS.** The prophylactic inoculation against typhoid, first introduced by Wright, promises in its modified form to be of great value. The above mentioned article of Russell gives an excellent account of the preparation and administration of the vaccine and of its use in the United States Army. Spooner working under Richardson's direction has inaugurated the routine administration of preventive inoculations to the nurses and house officers in the Massachusetts General Hospital. Russell advocated an initial dose of 500,000,000, a second of 1,000,000,000 in ten days and a third of 1,000,000,000 at the end of 20 days. No very definite results have been reported in the treatment of typhoid. Richardson thinks vaccines properly used will prevent a large percentage of relapses. Other writers think the course of the fever has been milder. The writer has seen no apparent result in some half dozen cases.

I have been able to collect accounts of eight cases

of typhoid carriers reported cured by the use of vaccines. If substantiated by further investigations the importance of the matter can hardly be overestimated. Not only is a check given to the spread of infection but the possibility of control of many cases of chronic typhoid cholecystitis seems offered. In two instances under my observation osteoarthritis of the spine developing not long after typhoid has seemed promptly and decidedly benefited by heterologous typhoid vaccines. In a case of obstinate recurrent bone lesions in which repeated operations had failed to cure an initial dose of 40,000,000 killed typhoid bacilli occasioned a distressing general reaction marked by depression and malaise for days. Subsequently treatment was begun with a dose of 1,000,000 and this was very gradually increased until a dose of 100,000,000 was reached. The affection has apparently been completely controlled.

**COLON BACILLUS.** There are many members of the colon group and whenever possible autogenous vaccines should be used in treatment. Infections of the urinary tract, sinuses persisting after abdominal operations, certain forms of colitis are the conditions most often requiring the use of vaccines. I have seen a fairly large number of acute infections of the bladder and pelvis of the kidney in women and children. It is my impression that such cases get well as quickly under general medical measures and hexamethylenamin as with use of vaccines. In chronic cystitis, pyelitis or pyelonephritis my experience has been that of others—that symptoms are greatly relieved, that in rare instances complete cure results but that usually bacilluria persists. Possibly long continued use of vaccines would finally clear up the infection. Recent work of Michaelis confirms the observation of Wright as to the agglutination phenomena of colon bacilli in the urine under the influence of autogenous inoculations. In a recent series of 30 cases of infection of the urinary tract reported by Hugh Cabot 25 were due to the colon bacillus. Vaccine treatment relieved symptoms in 19 while 11 were uninfluenced. In 27 bacteruria still persisted in 3 instances organisms had disappeared. The frequency with which tuberculosis is found associated with chronic colon infections of the urinary tract must be borne in mind and the proper treatment with mixed vaccines instituted.

I have seen two cases of chronic cholecystitis apparently much benefited by the use of colon bacillus stock vaccines in the past two years. Wright and Reid, Turton and Parkin have reported cure in acute cases of cholecystitis and cholangitis from the use of autogenous vaccines. Favorable results have been reported in the treatment of various diseases of the colon, ulcerative and membranous colitis, and English authors write of benefit to many indefinite symptoms of questionable relation with disturbances of the colon. The initial dose of colon bacillus vaccine should be from 10 to 20 millions. The amount may be increased quickly to 50,000,000 or even 100,000,000—the interval between injections should be from 5 to 7 days.

It is impossible to write of all the conditions in which treatment by vaccines has been recommended. Wynn, Cobb and others have treated actinomycosis successfully. Pyorrhea, asthma, bronchiectasis, acute

nephritis, prostatitis, many skin affections in addition to those just mentioned, common colds, sinusitis—all these have been reported benefited by autogenous or stock vaccines. The writer has seen improvement in two cases of chronic influenza, but variations in the course of this infection may be frequently observed under almost any treatment; in some of the cases regarded as chronic influenza I am of the opinion that the influenza bacillus is merely saprophytic and not the cause of pulmonary symptoms.

The report of Coakley and Kendall upon vaccines in chronic suppuration of the nasal sinuses is not encouraging; that of Reik upon vaccines in otology is equally unenthusiastic. In a series of 40 cases of middle ear suppuration communicated by Miss Nagle working with Cobb of Boston discharge had existed for a few months and in 34 from 1 to 40 years. Cure was obtained in 39! Injections were made at intervals of 3 days of autogenous vaccines sterilized at low degrees of heat in the shortest possible time. On the other hand Dr. Alice Hamilton of Chicago treated a number of cases of middle ear disease following scarlet fever; those treated by vaccines did well but no better than another group of cases with routine cleansing as the only therapeutic measure.

Reports like these make it difficult as yet to pronounce final judgment on the clinical value of vaccines. My own opinion, though not extremely enthusiastic, is that they offer a very decided addition to our resources in the treatment of infections and their complications. There is great need of more careful preparation of autogenous vaccines and of proper clinical supervision of dosage and frequency of administration. The indiscriminate use of stock preparations without proper determination of the nature of the infection is strongly to be condemned. I have seen several cases of syphilitic and tubercular arthritis being treated with gonococcus vaccines. One great danger of the multiplication of easily administered remedies supplied by drug houses lies in the neglect of careful diagnosis. Sober judgment should realize the limitation of the new method and not expect it to displace older forms of treatment. I have seen a patient being treated enthusiastically with vaccines for pneumonia with one side of the chest half full of pus. In another case colon vaccine was being given for the cure of pyuria while a pyelitis was being maintained by calculi in the kidney. Treatment with vaccines must supplement and not supplant well recognized surgical procedures. In light of our present knowledge no one has a right to delay operation on an acute mastoid of pneumococcus origin with the hope that vaccines may cure the infection. The infected gall bladder with cholelithiasis must be operated upon, the appendix abscess opened, the empyema drained before much help can be expected from vaccines.

#### Discussion.

Dr. C. C. Warden, Los Angeles: An expression of personal pleasure and profit derived from hearing Dr. Gay's valuable and timely paper must be my first duty. Coming from a source of such unquestioned authority and immense experience in biologic experimentation, the paper claims added value and distinction. The presentation deals with the sub-

ject historically, critically, and suggestively. The writer has given due credit to Jenner, Pasteur, Pfeiffer and Wright, and to that list should be added Bordet, Gengou and Gay. Wright's method and theory have been presented in clear outline and with very just criticism. The opsonic index as Wright commended it has ceased to be a practical guide to clinical work, but it served to introduce the phagocytic index of diluted sera and the curves to be plotted therefrom; a valuable but still impracticable laboratory method of studying individual immunity response.

As the author states, Wright did not fortify his work with animal experimentation. Were I permitted to select from the paper but one assertion to emphasize, it would be, in his own words, "Animal experimentation offers the only possible method of acquiring a complete series of facts and any consequent deduction as to the cause of biologic phenomena."

What are the principles of vaccine therapy? Allow me to present them as I see them. First, an indifferent, non-specific and natural immunity toward most organisms exists in most of the tissues of the body. Excessive numbers of organisms or increased virulence of bacteria may overcome this immunity but it is this natural cellular immunity and phagocytic activity that make vaccine therapy possible. Second, an infection is primarily local. Even when bacteremia results from a primary focus there are tissues which seem to be elective to bacterial growth, and bacteria are destroyed in, and by, a majority of the tissues. For example, consider pneumococcus or streptococcus sepsis. There is endocarditis and the blood is laden with bacteria, but abscesses in the spleen are almost unknown despite the fact that infective heart emboli find their commonest stopping place there. The same is true of lung, liver, brain and muscular systems. Animal experimentation has shown that it is not the circulating blood of itself which destroys organisms, nor indeed the unfortified leukocytes in it, nor the specific cells of the various tissues (save the hemolymph apparatus) but the endothelial cells of the capillaries in the organs and the fortified phagocytes in the tissues. Third, when bacteria have once come to thrive in a tissue, that tissue is no longer immune, and help will come not from increased destroying power of that tissue but by aid from the other tissues of the body; tissues of the body, not blood itself, for even toxins in the blood rapidly disappear. Toxins in the blood of one animal transfused into another animal produce no antibodies in the recipient, but the original toxin-bearing animal begets antibodies although deprived of its own blood.

These are the main principles, underlying all of which the leukocytes and phagocytosis constitute an active agency. These principles lead us to inject killed or live cultures into an infected individual in a part away from the original site of infection in order to produce, first, a local antibacterial, phagocytic and antibody reaction, followed by a general one. Is it not true that blood infection is, in a sense, a local infection, and that in a tissue which is almost wholly immune to bacterial influence? At any rate it is but a step beyond a local infection and why not administer vaccines for this infection as well as another. It is not irrational, on careful examination. The subcutaneous tissues which we inoculate are seldom attacked in general infections. They constitute a large, local lymphatic storehouse and laboratory, admirably detached, and fitted as a factory for antibody and phagocytic activity.

Granted then, that vaccine therapy is indicated in local infections, and bearing with me in the contention that vaccines are applicable in the other extreme (sepsis), what disposition is to be made of those infections with profound toxin exhibition like pneumonia, typhoid, etc.? In these infections the fatal event is either from accidental causes like hemorrhage or heart failure or complications or is determined by toxic action on nerve centers rather



than by exhaustion of the tissues. Paralysis and exhaustion of the tissues are shown by lowering of the body temperature. Temperature itself, barring hyperpyrexia, is an index of healthy tissue response to a toxin. Give vaccines in small quantities into subcutaneous tissues in conditions where temperature is normal or within limits above normal. The system benefits by the slight rise of temperature following such inoculation.

On the other hand, a purely local and very slight infection may be accompanied by profound intoxication, an intoxication as profound, or more so, and as sudden and overwhelming, as may occur in pneumonia, typhoid and septicemia. Vaccines are contra-indicated in all infections where intoxication is so heavy as to have produced tissue exhaustion, shown by feeble and failing pulse and lowered temperature and vitality. In such cases, truly, vaccines only add fuel to the fire.

### THE SURGICAL SIGNIFICANCE OF PAPILOEDEMA.\*

By LEON WALLACE MANSUR, M. D., Los Angeles.

The subjects of papilloedema and intercranial pressure from all causes, with decompressive operations for these conditions, have been so much written about in all the medical journals during the last few years that we are all more or less familiar with them.

Bordley<sup>1</sup> says that next to headache, choked disc or papilloedema is the most common symptom of brain tumor. Mr. Leslie Paton<sup>2</sup> in an analysis of 200 of his cases found papilloedema in 80%. De Schweinitz<sup>3</sup> found it in 85% of his cases. Other surgeons agree with them so closely that we can safely state that 80% at least of all cases of increased intracranial pressure probably have papilloedema.

The surgical significance of papilloedema is that we have to do with an increase in intracranial pressure from some cause, as new growth, abscess, cyst, hemorrhage, etc., and that unless the tension is relieved before destruction to the brain tissue and nerves occurs, the results of this destruction will become permanent and we will have various paralyses depending on the part of the brain involved, and blindness from the pressure on the optic nerves. For this latter reason the early recognition of papilloedema is of so much importance to both the patient and to the surgeon that too much cannot be said of having an early fundus examination in every suspected case.

It is now a pretty well recognized fact that the condition we know as choked disc or papilloedema is a simple edema of the optic nerve and is caused by intracranial pressure. I can best describe this condition by quoting directly from Mr. Leslie Paton's<sup>4</sup> paper on the pathology of papilloedema:

"This edema is due to two factors, venous congestion and obstruction of lymph outflow. The venous congestion is due to the rise in intravenous pressure which takes place in the central vein to correspond to the raised sheath pressure which in its turn is due to the raised intracranial pressure. Beyond the lamina cribrosa the central vein with raised intravenous tension comes to a tissue no longer subject to raised sheath tension (the vitreous) and the disproportion between intravenous tension and tissue tension leads to increased exudate of lymph. At the same time the drainage of lymph

from the disc is interfered with by the increased sheath tension and a consequent accumulation of lymph in the disc tissue takes place."

Shieck<sup>5</sup> from his observations and experiments agrees that there is no inflammatory process in the nerves, but that it is a simple edema. He further states, however, that the simple raising of the intracranial pressure will not produce the lesion alone, but that there must be also an increase in cerebrospinal fluid. This latter does not seem absolutely necessary to us, as the normal amount of cerebrospinal fluid present might be sufficiently compressed by a very large or rapidly appearing tumor. In fact, Bordley and Cushing<sup>6</sup> state in their experimental work that it may be caused "by transmission of pressure to the fluid already present," and later on in the same article that they produced the same results by digital compression on the dura through a trephine opening, and within the course of a few minutes observed a swelling of two dioptries occur in the nerve head.

Shieck also says that when fluid is injected into one side of the skull the fundus on that side is most violently and first affected. As regards the surgical significance of papilloedema this last statement is of the greatest importance to the surgeon, as when it comes to opening the skull for the relief of the tension and removal of the tumor, everything which can help us in localizing this tumor must be most carefully considered.

Fortunately we would ordinarily have paralyses and other symptoms in various parts of the body which would unquestionably aid us in our localization, and we would not be dependent on the eye symptoms alone.

Bordley and Cushing<sup>7</sup> in their experiments with the injection of fluids into the sub-dural space say they have seen the edema of the disc occur first in the opposite eye and later followed by equal changes in the homolateral eye. Sir Victor Horsley<sup>8</sup> says nothing less could have been expected from the Manz method (injection of fluid) which they employed. He thinks that while this introduction of fluid is of the greatest importance as the mechanical factor in producing the lesion, that we cannot rely absolutely as to which side it will first occur on. Sir Victor Horsley<sup>9</sup> was one of the first to call attention to the fact that the papilloedema was first seen on the homolateral side and that the greatest amount of involvement to the nerve was also homolateral. He thinks that in nearly every case the side on which the tumor is located can be determined by a careful examination of the fundus changes.

Paton<sup>10</sup> in an analysis of 252 cases found 84% on the homolateral side, but on account of the 16% contralateral thinks we cannot be sure from this alone. De Schweinitz<sup>11</sup> and Holloway say that in the majority of their cases the greatest amount of swelling was on the homolateral side, but that with Horsley, Cushing, Bordley and others they agree that other things besides the swelling must be taken into consideration.

We must carefully examine the fundus as to which nerve was probably first affected; the position of the swelling will here help us as it occurs first in

\* Read at the Forty-first Annual Meeting, State Medical Society, Santa Barbara, April, 1911.

the upper nasal quadrant and appears last in the lower temporal. We also look for signs of beginning or advanced atrophy, and to see whether we have any hemorrhages or other changes in the fundus.

We must carefully examine the vision in each eye with the refraction corrected for the best visual acuity.

We must also examine the fields for contractions and changes in the color fields. Bordley and Cushing<sup>12</sup> found that the blue field, which is the largest of the color fields, was the one most commonly and most markedly affected. It was always contracted, at times interlacing with the red and green fields and sometimes so contracted as to be well inside both the red and green.

This color inversion, or dyschromatopsia, was formerly supposed to be due to hysteria alone, and in fact up to this time has been used as one of the differential diagnostic points between hysteria and organic cerebral lesions. Now, however, that these changes in the color fields have been found so constantly in increased intracranial pressure, and to return of normal on the relief of this condition, we have another very valuable diagnostic sign.

He also says that in four of their cases they found the dyschromatopsia to precede all the other changes. On the other hand, in six of their cases (250 in all) no disturbance of the color fields were found. This shows us that, as in other conditions where one element of a symptom complex is wanting, if dyschromatopsia is present it is a valuable aid in our diagnosis, while if absent it is simply negative evidence and we must rely on the remaining symptoms.

In a later article, Cushing<sup>13</sup> says: "We have, indeed, come to place so much confidence in this phenomenon as an early indication of increased intracranial tension that in a few cases we have ventured to operate at a stage before choked disc had occurred, and in two cases at least the successful extirpation of a small tumor at an early date has been due to our growing faith in the reliability of the sign."

For the purpose of deciding when to interfere surgically in order to preserve the best vision for the patient, papilloedema has been divided into various stages. We think the best is De Schweinitz's<sup>14</sup> modification of Mr. Marcus Gunn's arrangement. In this we have for the

1st. Increased redness of disc, with loss of definition of edges. Slight prominence of surface, beginning filling in of porous opticus.

2nd. Edema of the nerve head, disappearance of the porous opticus, complete obscuration of the disc margins, moderate haze of surrounding retina and uneven distension of the retinal veins.

3rd. Decided increase of edema, elevation, and size of the nerve head, striae of edema in the form of lines in the swollen retina between the disc and macula, marked distension of the retinal veins and a few retinal hemorrhages.

4th. Increase in prominence of disc, which now assumes a mound shape and begins to lose its reddish color and to become opaque, exudation in and on

the disc and surrounding retina, elaboration in size and number of retinal hemorrhages.

5th. Decided subsidence of the vascularity of the papilla and increasing pallor with or without sinking of its prominence, shrinking of the arteries and thickening of the perivascular lymph sheaths, areas of degeneration in the retina especially in the macula region.

From this last stage we pass rapidly to the so-called post-papillitic atrophy.

In the first three stages the chances of preserving the vision are very good by operation, in the fourth while more or less permanent changes have taken place in the nerve and fundus we may still get useful vision, enough for the patient to get around by himself. In the fifth stage operation for saving vision is nearly hopeless, although it may relieve the patient of much discomfort. It is justifiable, however, as without operation he will surely become blind, and even if a vision of shadows is saved for him it is infinitely better than being in the dark for the rest of his life.

In conclusion we wish to call special attention to the following points:

1st. That papilloedema is one of the most common symptoms in increased intracranial tension, that unless this pressure is relieved before destructive changes occur the patient will become blind and hence the importance of an early recognition of this condition and an early operation for its relief.

2nd. The significance of dyschromatopsia and the importance of a most careful examination in all the cases we are inclined to call hysterical.

In connection with this last I should like to read you a case which Bordley and Cushing report in their article on dyschromatopsia:

"One of our recent patients in whom a temporal lobe tumor was disclosed at operation has in her possession a letter from a distinguished neurologist, written only a few days before the operation. From it we take the liberty of quoting a few sentences:

"I had the eyes examined in the first place in the fear of there being some choroidal changes due to nephritis, and incidentally the fields of color and vision were taken. A little to my astonishment we found complete reversal of the red, green, and blue fields with great contraction. This is a condition which I think may be said to be thoroughly characteristic of hysterical trouble and to be exceptionally rare—almost unknown—in any other condition. Additional suggestions of this same condition are these: the corneal reflexes are subnormal and the whole left side has subnormal sensation to pain, etc.

"While these hysterical symptoms are very distinct, and, as I said, due in my experience to no other condition, it seems to me at least probable that there is also a genuine slight loss of power on the left side, probably from a stoppage in a superficial vessel; and to this there have been added these hysterical manifestations. They were rather unexpected to me, as Mrs. ——— seems to be a person with self-control and calm decision. . . . I should treat her with massage . . . to prevent any tendency to contracture, which follows as certainly on hysterical paralysis as on cerebral or spinal ones."

"This letter we think is fairly representative of the views which are generally held in regard to these matters.

"Doubtless disturbances of the color fields have been observed heretofore in patients known to have brain tumor, but so far as we are aware they have



never been commented upon as being characteristic of any condition other than hysteria."

<sup>1</sup> Bordley, Jas. J. Ophthalmoscope, vol. IX, p. 9. Early recognition of choked disc.

<sup>2</sup> Paton, Leslie. Brain, vol. XXXII, p. 67.

<sup>3</sup> De Schweinitz. University of Pennsylvania Medical Bulletin, April-May, 1906.

<sup>4</sup> Paton, Leslie. Ophthalmological Society United Kingdom, Feb. 9, 1911. Pathology of papilloedema.

<sup>5</sup> Schieck. Archives of Ophthalmology, vol. XL, p. 87. Experimental studies concerning the genesis of choked disc.

<sup>6</sup> Bordley and Cushing. Bulletin of Johns Hopkins Hospital, vol. XX, p. 99.

<sup>7</sup> Ibid, p. 95.

<sup>8</sup> Horsley, Sir Victor. British Medical Journal, Jan. 5, 1910. Optic neuritis, choked disc or papilloedema.

<sup>9</sup> Horsley, Sir Victor. British Medical Journal, Mar. 5, 1905.

<sup>10</sup> Paton, Leslie. Ophthalmological Society United Kingdom, vol. XXVIII. Optic neuritis in cerebral tumor.

<sup>11</sup> De Schweinitz and Holloway. Transactions of the College of Physicians of Philadelphia, 1908. The operative treatment of papilloedema, with special reference to decompressive trephining.

<sup>12</sup> Bordley and Cushing. Archives of Ophthalmology, vol. XXXVIII, p. 451. Alterations in the color fields in cases of brain tumor.

<sup>13</sup> Cushing, Harvey. Lancet, Jan. 8, 1910, p. 91. Recent observations in brain tumor and their surgical treatment.

<sup>14</sup> De Schweinitz and Holloway. Transactions of the College of Physicians and Surgeons of Philadelphia, 1908.



Fig. 1. Case 1—Cerebellar tumor.

## THE DIAGNOSIS OF CERTAIN INTRACRANIAL LESIONS.\*

By THOS. J. ORBISON, M. D., Los Angeles.

I wish to consider briefly certain lesions of various portions of the brain and dwell upon the diagnostic points which seemed to be either essential or germane. To this end I shall use, when possible, the clinical material which I have at hand, both in the form of histories of cases and specimens of brain lesions.

**TUMOR OF THE CEREBELLUM.** Dr. Herman Hoppe, in a paper read last year before the section on Nervous and Mental Diseases of the A. M. A., said: "I believe that we can say with some accuracy, whether a growth is in the pons or the region of the corpora quadrigemina, and I believe that the diagnosis of growths in the cerebello-pontine angle can be made with almost equal facility; but the great stumbling block is offered by tumors of the cerebellum itself." In addition he emphasized the great difficulty and the great necessity of an early diagnosis in these cases. A very interesting and instructive case in point will serve to illustrate precisely his proposition:

Case I. W. S., Aet. 30 yrs. Telegrapher. 6, 21, '09. Ref. to me by Dr. Weherly. Santa Ana. Family history is good except that the patient had an imbecile brother. P. H. He has been married ten years; has two healthy children; his wife has never had a miscarriage; he denies syphilitic infection. He has always been healthy and abstemious as to food and drink.

Up to November, 1908, he felt quite well, but during that month he began to notice the first symptoms of trouble: First symptoms (while living in Minnesota): There began a tendency to anorexia and, later, vomiting. This was noted just after meals and generally in the morning. Soon after began a peculiar feeling which he described as a "prickling feeling" at the back of the neck; worse on getting out of bed but wearing away later.

Second stage symptoms: He now began to show a tendency to veer over to the left side of the road or path or railroad track as he went to and from his work. He only became alarmed when told he might

be developing a cancer of the stomach and went, in January, 1909, to a surgeon for a careful examination. No gastric lesion was found and he was sent back to his home as a neurasthenic. (His eyes were not examined).

Third stage symptoms: In February, 1909, he first noticed some disturbance of vision, e. g., the lines of the pavement would seem broken and twisted; small objects would elude him. In March he came to California. All his symptoms continued to be progressively aggravated, with now and then a remission. In March he first noticed diplopia. This and the increase of staggering caused him the necessity of a cane.

Fourth stage symptoms: In April, 1909, he first noted tremor of his left arm. (This has persisted and is of the intention type).

Fifth stage symptoms: For the last two months (May and June, 1909), he noted first some tinnitus in the left ear, then increasing deafness in the same side.

Gait: He walks with feet far apart and only by the help of a cane. When it is taken away he staggers like a drunken man—and always to the left. As he sits in a chair his head is held at an angle, chin to the right and top of head to the left with left ear approximating the left shoulder (cerebellar attitude). Station is very bad with eyes open or shut. While in prone position he can turn either way without discomf. When told to look quickly over his left shoulder, he experiences a peculiar dizzy feeling. Pupils: Equal and react sluggishly to light and in accommodation—(the eyes do not converge). There is slight internal strabismus of left eye. The left side is markedly ataxic. Eye grounds were examined by Dr. C. H. Montgomery (intersection of fields plainly seen). Ears were examined by Dr. Hill Hastings: His findings showed a central deafness of left nerve; no involvement of cochlea and labyrinth.

A diagnosis was made of cerebellar tumor or cyst; left sided; beginning in body of left lobe but impinging upon the cerebello-pontine angle of same side. Prognosis was very grave, but operation was requested by the patient to be done at once. The diagnosis was borne out at the operation, performed by Dr. Lobingier (at which the lesion was found but not removed); and by the post mortem findings, as the patient died about nine hours after the operation. It was one of those inoperable tumors growing within a cyst and the diagnosis had not been made early enough to be of much use to the patient.

\* Read at the Forty-first Annual Meeting of the State Society, Santa Barbara, April, 1911.

I have gone into this history at such length for two reasons—it emphasizes again the fact that the classical symptoms of brain tumor are for too long a time treated as being merely symptoms of "nervous dyspepsia," neuralgia, "chronic gastritis," or neurasthenia,—as was the case in this instance. Secondly, it demonstrates so many interesting symptoms of intracranial lesions.

1. We have here the adducent involvement with strabismus and diplopia which was such a baffling symptom until Harvey Cushing gave what seems to be the first explanation backed up by clinical and post-mortem findings. In a paper on "Strangulation of the Nervi Abducentes by Lateral Branches of the Basilar Artery in cases of Brain Tumor" (Am. Neuro. Asso., 1910), his conclusions were—1. That the arteries, contrary to the usual anatomical descriptions, generally *overlie* the nerves, 2. In a series of brain tumor cases the vessels which normally encircle the brain stem often produce a more or less

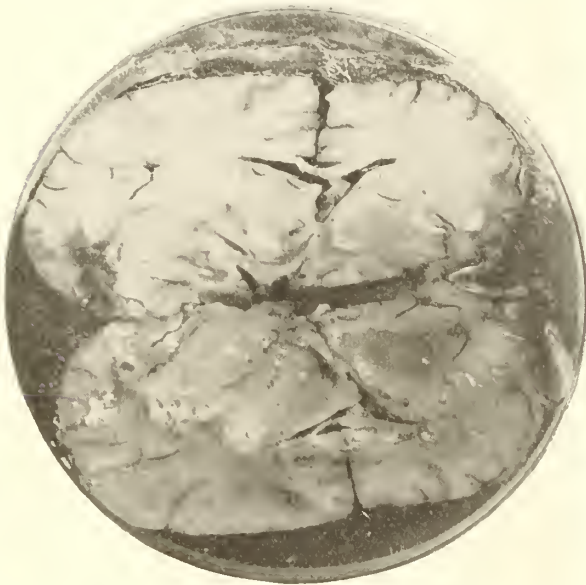


Fig. 4. Case IV—Vertical section through frontal lobe.

deep grooving of the nervous tissues. 3. The abducentes, in many of these cases, are constricted. 4. A large percentage of clinical histories of cases which show post-mortem a pontine grooving, with accompanying implication of the nerves, record subjective diplopia or an actual presence of a convergent squint observed during life. Before this the generally accepted opinion was that the abducentes on account of their length and direction were more apt to torsin during intracranial pressure. The case I have cited showed this grooving by the left 6th nerve which was due to an overlying artery, with constriction of the nerve.

II. Another symptom of interest is the interlacing of the color fields—shown so well in this case by Dr. Montgomery's findings and in another by the findings of Dr. Lewis Thorpe, in a case of cerebellar cyst in which I made a neurological examination for Dr. Lobingier.

Two years ago it was brought out very clearly by de Schweinitz, Mills and Cushing that such interlacing was to be regarded as one of the symptoms

of intracranial growths. But it was not so very long ago that this interlacing and inversion was considered pathognomonic of hysteria—confounding it with the hysterical symptoms of tubular vision and diplopia with but one eye open.

III. A third symptom that aided in the diagnosis was the "cerebellar attitude" referred to above—the top of the head being held toward the lesion.

IV. The very interesting progress of the symptoms allowed us to make the diagnosis that the tumor was cerebellar and left sided; that it began in the lobe, but (because of the late involvement of the 8th nerve) that it had impinged upon the cerebello-pontine angle.

V. Now, as to other symptoms of intracranial tumors in general which have been a great help in certain cases of *obscure* tumor this was one brought out by Dr. Spiller two years ago; he writes: "Provided there are no indications of cerebral abscess, *progressive hemiplegia*, or *hemiplegia of gradual onset* (in which weeks or a few months elapse before the paralysis is complete) may be regarded as strong evidence of cerebral tumor—even when optic neuritis is absent; or when optic neuritis, headache, and vomiting are all absent." Not only tumor but also encephalitis will, however, develop the same symptom or a modification of it and I will cite a case in this connection:

Case II. M. W. Aet. 4 yrs. Ref. by Dr. Lobingier, for examination. Family history was good. Patient was born asphyctic, but resuscitated. He seemed normal up to three months when he became suddenly ill following a fright. He was feverish, irritable, refused nourishment and developed convulsions. The acute stage lasted about one week. From that time on he has had convulsions—3 or 4 a day for the last 7 months beginning in his right hand. At the age of about one year it was noticed that the head began to increase in size. (Internal hydrocephalus). Six months ago he had a bad series of convulsions; since then he has been very irritable, bites himself on the hand and cries out (arrested development). For the last year his mother has noticed an inability to use his right hand at all well. Close questioning and observation bring out the fact that the convulsions always begin in the right hand.

Examination showed a child with a massive head; no exophthalmos; poor mentality; astasia abasia; inability to articulate. The right arm shows athetoid movements and he does not grasp objects with his right hand.

A diagnosis of encephalitis was made and the lesion placed in the motor area of the hand and arm of left side of the brain. The parents were told of the situation and warned that an operation might reduce the spasms to a large extent, but small hope was given for much increase in mentality because of the obvious conditions of cerebral insult.

An operation was asked for by the parents and performed by Dr. Lobingier. An area of old encephalitis was found at the point designated. The brain was very much waterlogged. The lateral ventricles were tapped and at once the brain pulsated nicely. The area of degeneration was excised and adhesions relieved. The child did very well up to last reports. There cannot be much hope, however, for very much permanent improvement; but the operation did fulfill all the promises held out to the parents.

TUMORS OF THE FRONTAL REGION. A case was referred to me by Dr. Broughton within the month that was intensely interesting as being a *probable* involvement of the frontal lobes.



Case III. Mr. G. Aet. 37 yrs. M. Salesman. Family history good. Previous health, except for severe pain in the neck, always excellent and robust; and he absolutely denies syphilis.

He came to California on account of his wife's health. Within the last six weeks, and especially within the last three weeks, he had developed an entire change of personality. He seemed to be constantly under the influence of some drug. His speech became slurred and slowed; he was somnolent most of the time; he developed mild grandiose symptoms. When seen first, his eyelids were half open and as he smoked his cigar it would go out. At times it would drop from his hand. There was some uncertainty as to his gait. That was the whole picture. His eye grounds were examined by Dr. C. H. Montgomery and found to be normal. His pupils were equal and reacted normally. His K. J.'s were much exaggerated. No Babinski found. Vision was good. There was some flattening of the naso-labial folds on both sides.

One point of diagnostic interest was that there have been decided and almost total remission of his symptoms—only to recur again.

This case did not show either headache, vomiting or optic neuritis, and yet I made a provisional diagnosis of frontal lobe involvement, and will keep the case under observation for localizing signs. The diagnosis was tentative but the absence of pupillary rigidity, the presence of exaggerated K. J. and sudden onset of mental symptoms helped to determine the diagnosis of organic rather than mental disease. (Analogous to this case were three reported two years ago by Spiller, in America, and one last year by Couran, in England).

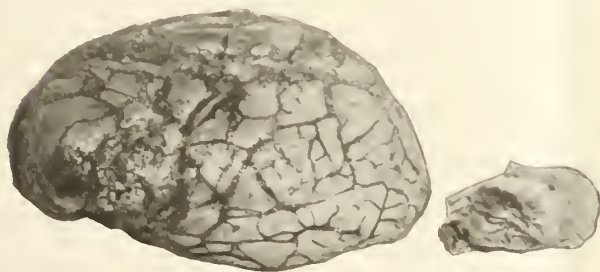


Fig. 5. Case V—The small tumor on the right was the primary tumor in the testicle.

A Wassermann test will be made in this case when we can get the patient's permission.

Case IV. Male, age 30, single. January, 1910, had double vision (abducent involvement), and partial loss of eyesight (optic neuritis). In March, 1910, he complained of general weakness with headache for three weeks and was totally blind (double optic neuritis) for ten days. Vomited once with nausea. Eye grounds showed optic neuritis in both eyes. Then his strength and eyesight gradually improved (accommodation to pressure). In April and May six short attacks of aphasia. Spells of shivering, possibly convulsions. May: left eye became totally blind, right eye had perception of light.

Coordination of hands good. Station fair. Feels tendency to fall to the left and forward. Left knee jerk greater than right. Slight left ptosis and lateral nystagmus.

A decompression operation was performed July 9th. August 22nd, had a delirium for one week followed by unconsciousness.

October 30th: Paralysis of left side, first in the foot, then leg and then hand and then face. Died November 8, 1910.

Autopsy showed a glioma invading the left frontal bone.

Case V. Metastatic Cancer in Motor Zone: primary lesion in the testicle. (Specimen from Hendrick Lab.) J. H. Young adult. Laborer by occu-

pation. Two weeks previous to the first examination while digging a cesspool was injured on right side of head by a falling timber; was not rendered unconscious but was dazed and did not work any more that day. Next night had an attack of diarrhea and vomiting. A few days later developed aphasia.

Sept. 21, '09. Had violent epileptiform seizure. Right arm slightly paralyzed for a few hours. Attention was called to enlarged testicle which upon examination proved to be a testicle enlarged to four times, an entire absence of pain or soreness, with a history of having been growing for about two months.

Sept. 22, '09. Had another seizure. Again there was paralysis of right arm.

Oct. 6, '09. While he had no more seizures, he became gradually weaker and more restless, had severe headache and marked aphasia; progressive paralysis of right leg developed and patient lapsed into semi-unconscious state.

Post mortem findings. Circumscribed tumor making pressure from within outward upon motor area. The large testicle on section showed the same general appearance as did the brain tumor. Microscopical examination showed tumor to be carcinoma, metastasis in the brain.

Case VI. Secondary lesion of brain following tumor burrowing into antrum.

Patient, man, 51 years. Admitted to County Hospital February 12th, died February 17th, 1911. Complaint: Unable to move arm and leg. Family history negative.

Eight or ten days ago walked out to Saugus in rain and had chill that night. He vomited before he



Fig. 6. Case VI—Showing the primary tumor attached to the eye.

went to bed; also noticed that he could hardly untie his bundle. Next morning noticed dull ache in right side of head. He noticed some trouble with right eye at that time, but thought it was due to cold. Has not noticed any trouble in speech or in swallowing. Next morning walked back to Los Angeles. His left leg felt limp and weak, but patient walked out to hospital from town. He noticed no trouble with vision and has had no pain.

Patient well nourished. Exophthalmos of right eye—eyes react to light and accommodation; no limitation of motion; no pulsation; pupils equal. Discharge from right side of nose and pain on pressure over frontal sinus. Drooping of left corner of mouth. Patient has partial wrist drop on left side. He can raise the arm even with shoulder and flex and extend forearm slowly and can raise the hand slightly. Sensation is not always certain below wrist; he can tell if his hand is gripped, but not

which finger is touched. Leg: reflexes present; sensation normal; no Babinski or ankle clonus; no limitation of motion; some spasticity at times.

Eyes, nothing abnormal noted except exophthalmos of right eye.

Nose, discharge from right side, purulent tinged with blood; tumor mass noted in right side of nose, quite extensive.

Autopsy: Old blood in right antrum. Upon opening the roof of the orbit on the right side there was found normal orbital fat; but on removing the base round antrum filled with grayish brown and old hemorrhagic mass. In frontal sinus and ex-

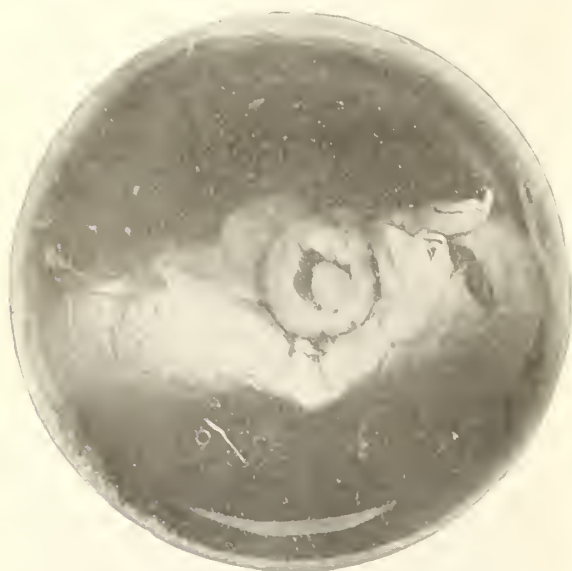


Fig. 7. Case VII—Tumor of the fourth ventricle.

tending into orbit and occupying base was found a tumor which could be removed only with difficulty and in fragments. Microscopical examination of brain substance around the cerebral hemorrhage show pigmentation marked about site of hemorrhage with atrophy of cellular elements. Basal ganglia pushed over. Ventricle on right side partially collapsed; no tumor. Large clot bigger than egg in right parietal region and posterior to posterior fontanelle; consistency of brain around clot very soft. Basilar vessels normal.

Case VII. The specimen of tumor of the 4th ventricle was loaned me by the Hendrick Laboratory (of Dr. F. C. E. Mattison). W. H. Age 20. In August, 1906, he complained of some pain in his jaws. September 22nd he had paralysis of right side of face. Early in October he commenced to have difficulty with his right eye and general diplopia. Some numbness and tingling in left arm and leg. Dizzy most of the time, nausea almost continuously. A tentative diagnosis of gumma in the floor of the 4th ventricle was made, and he was put upon iodide of potassium together with mercury.

Died March 26, 1907. Autopsy by Dr. Black showed glioma on the floor of the 4th ventricle to the right of median line, size of walnut.

I wish to express my thanks to Dr. Mattison for his permission to use this case.

In conclusion I desire to express my obligation and thanks to Dr. Black for the specimens from the Hendrick Laboratory and to Miss Tucker, Secretary, and Miss Bettin, of the 3rd-year class in the Los Angeles Dept. of Medicine, University of California, for their help in assembling the specimens and histories.

## THE INDICATIONS, TECHNIC AND RESULTS IN DECOMPRESSIVE OPERATIONS ON THE BRAIN.\*

By WALLACE I. TERRY, M. D., San Francisco.

The idea of trephining the skull for the relief of increased intracranial pressure is an old one—indeed it is possible that the crude openings in the skulls of some prehistoric individuals were made for the purpose of relieving persistent headache due to tumor. The credit of advocating decompressive trephining for tumors of the brain which were not removable or could not be located is due to Horsley, although others had previously reported cases where such operations had been done. It was not, however, until Harvey Cushing, basing his ideas largely upon his experimental work on cerebral compression, emphasized the value of decompression and made great improvements in the technic of the operation, that the procedure became well known and quite generally adopted.

When we consider that the adult brain is enclosed in a rigid bony cavity, it is readily understood that any neoplasm encroaching on this cavity does so at the expense of the blood, the cerebral fluid or the brain tissues normally occupying it. Within certain limits, the blood and cerebro-spinal fluid accommodate themselves to the increased intracranial pressure and the patient may present no symptoms of brain tumor. When, however, the tumor is larger or produces irritative symptoms with an increase of fluid or blood in the cranial cavity, the patient will then manifest the usual symptoms of increased intracranial tension, such as headache, vomiting and eye changes. It has been said that the diagnosis of a brain tumor is comparatively simple, but the localization of it is oftentimes a difficult or impossible matter. It is in just such cases where a tumor cannot be located or where, because of its size or location, it cannot be removed that a decompressive operation is indicated. By giving the brain a chance to expand the symptoms are ameliorated or even cured. Most important of all, the eye changes, beginning with choked disc and ending with optic nerve atrophy, may be stopped. It is a well recognized fact that the atrophied optic nerve does not regenerate and that often when atrophy has begun it progresses, despite the relief of pressure. Choked disc, however, can usually be improved and impending blindness prevented by decompression. Horsley says: "In no case of optic neuritis (not, of course, of toxic or anemic origin) should the process be allowed to continue after it has once been diagnosed, and if blindness results therefrom the responsibility is very heavy on any one who fails to advise such a simple procedure as opening the dura mater."

Occasionally we see instances of natural decompression; in the young, by the separation of the sutures, and in other cases where a tumor mass has grown through the skull and permitted expansion of the cranial contents. Two instances of the latter form have come under my personal observation—both being sarcomas springing from the dura mater in the upper occipital region. One patient was re-

\* Read at the Forty-first Annual Meeting of the State Society, Santa Barbara, April, 1911.



ferred to me by Dr. S. T. Pope with the history that he had noticed a mass on the back of his head about ten years previously. He complained of headache, dizziness and diminished vision which proved to be from a hemianopsia. At operation two years ago it was found that a dural sarcoma had perforated the skull. A considerable area of skull and most of the tumor was removed and the remainder of the tumor treated with the Roentgen ray, injections of Coley's fluid, and acetone, with the result that the headaches and dizziness disappeared and the field of vision became considerably increased. The second case showed headache, vertigo and marked optic atrophy at the time he came into my service at the San Francisco City and County Hospital and a similar operation a month ago has given much relief, but, of course, the blindness persists.

In some cases of cerebral tumor, compression has been relieved by the withdrawal of fluid by spinal puncture, but as this procedure is so dangerous in such cases it should never be done. There are numerous cases on record of sudden death after spinal puncture with withdrawal of considerable fluid, due to crowding of the medulla and the walls of the fourth ventricle into the foramen magnum. For diagnostic purposes the pressure of the spinal fluid can be determined by suitable apparatus without losing more than a few drops of fluid and part of this can be used for chemical and microscopical examination. Krause records a case of brain tumor in which after removing only 2 cc. of spinal fluid the patient immediately vomited, went into collapse and remained unconscious for a number of hours.

It is an unfortunate thing that the diagnosis of brain tumor is so often followed by the prolonged administration of antileptic remedies, with the result that valuable time is lost. It is a far better plan to first relieve the pressure and then to medicate, than the reverse. The Wasserman and other similar tests for lues are almost certain diagnostic measures, and for one to push the iodides and mercury in suspected brain gumma with a negative Wassermann is wrong. Horsley is strongly of the opinion that these gummata are not cured by such treatment and that they should be removed if possible. Whether the new arsenical preparations will accomplish the results remains to be seen.

Cushing has employed subtemporal decompression as a preliminary step in the removal of tumors in some cases. In one instance he bared the anterior half of the left hemisphere and finding the dura very tight, he did a left subtemporal decompression and closed the first bone flap. Five days later, as the pressure was not sufficiently relieved, he did a right subtemporal decompression and again after five days he reflected his original bone flap and successfully removed a prefrontal tumor without subjecting the brain to the dangers incident to a marked degree of protrusion.

Cushing has also applied the principle of decompression to cases of cerebral hemorrhage in the newborn, basal fractures of the skull, epilepsy and headaches of the migraine type. He has achieved some splendid results in cerebral hemorrhages in the newborn—those cases which result in Little's disease. About half of his patients recovered. I have

had but one such case, referred to me by Drs. Spaulding and Moffitt, upon which I operated in 1905 with a fatal termination due to shock.

In basal fractures of the skull, Cushing has made decompression with drainage a routine procedure at Johns Hopkins Hospital. In these cases it is difficult to generalize, for the brain injury is often so severe that the patients will die despite any treatment and in others recovery will ensue with practically no treatment. My own experience in basal fractures has been fairly large and while I believe that decompression with drainage is a rational procedure, I have been disappointed with the results I have obtained from it. It is not alone that the decompression aims to relieve the pressure from hemorrhage at the base but it is also for the purpose of minimizing the disastrous effects of edema of the brain and its membranes which rapidly follows trauma. Decompression for epilepsy is indicated only when we have evidence of abnormal tension, the cause of which is obscure or cannot be removed. As regards decompression for headaches, I quote from Cushing: "There are many types, of course, of hemicrania and many causes for it, but in one familiar group there occurs during the attack a marked arterial dilatation of the temporal vessels, accompanied by a venous congestion which is seen best in the external branches of the ophthalmic vein, but which is observable, too, by the ophthalmoscope in the eye grounds. Ptosis, pupillary inequality, vomiting, slow pulse and other familiar symptoms, associated at times with a low grade of choked disc, accompany the attacks, and a number of these individuals have submitted with eager willingness to the experiment of a subtemporal decompression, which has resulted in a considerable measure of relief in most of them." Cushing states, however, "that the matter demands much longer study before it can be advocated on a sound basis of therapy," but it seems like a step in the right direction.

As regards the seat of decompression, Horsley first advocated making it over the suspected area but he now employs the subtemporal route in those cases of tumor which cannot be safely removed or in which localization is impossible. If the pressure is subtentorial, then of course the decompression should be in the occipital region.

The credit for originating the subtemporal and the suboccipital decompressive operations belongs to Cushing and as they possess such manifest advantages over the other types of operation, the technic of them will be briefly considered. The major principle involved in Cushing's operations is the restraint of the cerebral or cerebellar hernia by aponeurotic and muscular tissue. Where the hernia is covered only by the scalp, the growth of the tumor may lead to a rupture of the scalp with the development of a fungus cerebri and death from infection. The temporal muscle and fascia on the one hand and the suboccipital muscles on the other are, if properly united, sufficiently strong to prevent such an occurrence. Another advantage of the subtemporal route is that the herniated portion of brain is over a silent area and neither paralyzes nor aphasia are the direct results of the decompression.

For the subtemporal decompression a curved in-

cision through the scalp is made along the temporal ridge, the flap turned down, and the fascia and muscle split in the direction of their fibers. In decompression for basal fractures the scalp incision can be made obliquely backwards parallel to the fibers of the posterior portion of the temporal muscle. The periosteum should be scraped back and the underlying skull removed for an area of two by three or four inches without disturbing the temporal ridge, the origin of the muscle. The dura should then be opened and a portion of it excised, care being exercised with regard to the meningeal vessels. The temporal muscle, fascia and scalp should now be carefully sutured in layers without drainage. The right temporal region is the area of choice in right handed persons, but if sufficient decompression is not obtained, the opposite side should be similarly treated.

For the exposure of the suboccipital region, a crossbow incision is usually made—a curved, transverse incision just below the origin of the superficial muscles, the trapezius and complexus, joined by a vertical in the median line of the neck. After dividing these muscles about an inch below their origin, and the ligamentum nuchae in the median line the occipital bone is exposed by scraping away the periosteum and the attached deeper muscles. The bone is then removed with a rongeur, beginning at either side, for the hemorrhage from the diploe is apt to be embarrassing as the median line is approached. For the control of the emissary veins Cushing employs dry absorbent cotton which promotes coagulation. The occipital bone can be removed if necessary as far as the foramen magnum. The dura should then be incised on either side of the occipital sinus and the sinus divided between ligatures as advocated by Frazier. A considerable portion of the dura should be excised to permit herniation of the cerebellum. The operation is completed by careful approximation of the muscles, aponeurosis and scalp.

### THE SURGICAL TREATMENT OF SUB-TENTORIAL CYSTS AND TUMORS.\*

By ANDREW STEWART LOBINGIER, M. D., Los Angeles.

It may be said with a large element of truth that the diagnosis of intracranial growths is now based upon data which formerly was either overlooked or failed of proper interpretation. In this respect there has been quite as great advance as in the appreciation of the early and classic evidences of gall stones or of gastric ulcer. There was a time in the very near past when these pathologic conditions were known only as their terminal complexes made them evident.

If we are to accomplish anything vital in the surgery of the brain it must come through the earliest possible recognition of intracranial lesions. This can only be realized by discarding an ancient and misleading symptomatology and in its place establishing proven and dependable evidences of the very beginning of pathologic change. We have had illuminating examples in recent reports of what

some of these now well established evidences of intracranial tension are; they have always existed and have only waited an intelligent reading of their significant meaning.

May we not hope that soon we shall have done with mistaking cysts for hysteria, gliomas for neurasthenia; and neuro-retinal edema as significant chiefly of nephritis? The causes of intracranial tension are not so few nor so rare that we should stubbornly persist in finding extraneous causes for the real and palpable symptom complex.

If inspiration may come from the Queen's Square, Augusta and Johns Hopkins clinics, the brilliant work of Horsley, Krause and Cushing should encourage those interested in this field of surgery to work the more earnestly, that those upon whom the burden of diagnosis shall fall will read these melancholy signs early and accurately. A papilloedema allowed to pass unrelieved beyond De Schweinitz's fifth class into a hopeless optic neuritis, Horsley calls a crime. A tumor allowed to grow for years at the expense of a large, active area of the brain, without detection until inoperable and beyond relief is equally a grave reflection. One is continually amazed at the elaborate effort exerted to class these cases in some other—any other, category than brain tumor. Why is this true? The encephalon is not *terra incognita* to many who have given this field studious attention. It is true as Cushing says, (*Lancet*, Jan. 8, 1910) that "intracranial surgery from a technical standpoint is unlike all other forms of surgery in that the delicate structures involved cannot be handled with sponge and clamp and ligature as can the tissue of the body with which the surgeon is more familiar. It is far easier to do harm than good by the rough and rapid operative measures so commonly employed.

"Familiarity with special methods of manipulating a brain under tension, of controlling hemorrhage from the cerebral substance without insult to the tissues, of avoiding injury to the pia-arachnoid until actual extirpation is attempted are essential to success in the work."

It frequently happens that a diagnosis is made only after years have elapsed through which the tumor may not only have caused irreclaimable destruction of the auditory nerve and the retina but grown to such a size or into such a vital area that its removal is impossible, as the following case illustrates:

Wm. F. S. Age 30 years. Born in Minnesota. Was quite normal up to Nov., 1908, when he began to notice the beginning of his present trouble. It began by loss of appetite followed later by vomiting, chiefly after meals and in the morning. He developed a peculiar prickling pain in the occiput which seemed aggravated upon rising from bed or suddenly changing his position. If he remained quiet it did not trouble him. His gait began to incline to the left. Because his nausea and vomiting steadily grew worse it was thought he had a malignant ulcer of the stomach. He consulted celebrated gastrologists and surgeons in the west and after a thorough examination he was sent home with a diagnosis of "general debility." In the latter part of February, 1909, he first noticed failing vision. In March, 1909, he and his family came to California. The headache and vomiting continued

\* Read at the Forty-first Annual Meeting of the State Society, Santa Barbara, April, 1911.



in an aggravated form and he developed diplopia. His gait was staggering, he frequently stumbled necessitating his using a cane and he had some trouble swallowing. In April he first observed tremor in his left arm. There were times when his nausea and headache were diminished. When looking quietly to the side he would suddenly become dizzy even while sitting. Since April a gradually increasing deafness in the left ear was noticed. His left knee gives way if he attempts to stand on his left foot and he has cephalic inclination to the left.

Drs. Wehrley and Orbison, through whose courtesy I was permitted to see this patient, suspecting cerebellar tumor had repeatedly urged him to have it enquired into surgically. When the patient finally came to me September 11, 1910, he had nausea, headache, partial blindness, absolute deafness in the left ear, staggering gait, an atypical nystagmus and examination of the fundus by Dr. Montgomery revealed a bilateral papilloedema more intense on the left and dyschromatopsia. It did not require further data to arrive at a diagnosis of tumor pressing on the acusticus and at operation done on the 14th day of September, 1910, a deeply lying growth of ovoid form, 4 centimeters by  $2\frac{1}{2}$  centimeters in dimension with several cysts the size of small nuts grouped about it, was found lying within the left lobe of the cerebellum impinging on the left auditory at the pontine angle and extending for a centimeter and a half bordering on the pons and medulla. On two attempts to lift the growth from its attachment the respiratory center was so disturbed that respiration ceased,—on the second attempt only to recover after a long interval and artificial measures to restore the equilibrium of the center had been used. Unwilling to make further attempt to enucleate the tumor at the time the wound was closed. The patient lived nine hours after the operation.

Apart from the importance of posture of the patient and the choice of anesthetic, the approach to the cerebellum is attended with sufficient difficulties to justify the consideration of some of the more important features. Whether we elect to employ the quadrilateral flap of Krause or the cross-bow incision of Cushing, hemorrhage from the soft parts and from those emissary veins lying posterior to the mastoid cells is a problem of first importance. It not infrequently happens that an emissary vein may require plugging with a sterile basswood cone before the flow can be controlled. This will usually be necessary in veins over four m. m. in diameter. The smaller ones may often be controlled by crushing in the periphery of the opening in the external table with a blunt instrument devised for the purpose. Control of hemorrhage from the soft parts covering the occiput would be a very simple procedure were it possible to use the tourniquet here as in operations on the cerebrum. It is necessary therefore to proceed in the uncovering of the cerebellar region with such care and deliberateness as will insure a minimum loss of blood; and any one who has has a measurable experience in cerebellar operations will not fail to accord exceptional care to hemostasis.

If the subtentorial space has been under tension for any considerable time the skull may be thinned down to a millimeter in thickness. The greatest caution should be used to avoid opening into the subpial space in cutting through the thin table. One rarely encounters sufficient hemorrhage from the hardened and thinned diploe requiring the bone wax. Only when well toward the mastoid cells or

above the lateral sinuses or near the foramen magnum may diploe oozing be annoying and it is easily controlled by Horsley's wax.

One of the most valuable suggestions in exposure of the cerebellum is that of Cushing wherein the dura instead of being opened first beneath the transverse sinus causing immediate and embarrassing extrusion of the lobe under tension, is incised low down next the foramen magnum. This quickly drains off the spinal subtentorial fluid, relieves the tension, avoids herniation and bleeding from the exposed lobe or crowding downward of the medulla into the spinal canal. The cerebellum sinks back into place allowing a clearer field for work and the shock of depression arising from sudden change of pressure is averted.

Duret called attention years ago to the fact that there was a great difference in the various portions of the brain as to the degree of shock attending its manipulation. Horsley believes it "obvious that inasmuch as the nerve centers of organic representation are situated in the posterior fossa of the skull opening of this region might theoretically be expected to cause more shock symptoms than the opening of other parts." Horsley's statistics show two and a half times the mortality in operations on the cerebellum as compared with motor area of the cerebrum. (Toronto address, July, 1905.)

His tabulation shows a ratio of:—

Motor area	1 death in 27 operations
Parietal post parietal region	1 death in 19 operations
Frontal region	1 death in 13 operations
Temporal region	1 death in 12 operations
Cerebellar region	1 death in 10 operations

Harvey Cushing in his Liverpool address (*Lancet*, Jan. 8, 1910), reports 35 operations on the cerebellum up to that time with 4 deaths, one from post operative pneumonia, which he believed induced by faulty posture; a second from hemorrhage from a tumor of highly vascular nature arising from the region of the corpora quadrigemina; a third from *status lymphaticus*, and a fourth from an effort at the first sitting to enucleate a portion of the wall of a very extensive gliomatous cyst. "In fourteen out of thirty-five suboccipital operations the tumor was not found and the procedure was abandoned as a simple decompression with the usual degree of palliation."

Cushing sums up: "In this group of 35 cerebellar operations there have been 4 operative fatalities (11.4%), thirteen successful extirpations or cyst evacuations (37.1%), fourteen operations abandoned or decompressions (40%) with complete abeyance of symptoms in many instances and two cases (5.7%) in which practically no betterment occurred. In view of the fact that cerebellar tumors are regarded by many as particularly unfavorable for operation these figures are encouraging and we may hope for a still better showing in the future when surgical treatment will be instituted at an earlier period of the disease. Even with our recent improvement in this respect the fact that 12 of these 35 patients were blind or nearly so at the time of operation shows how dilatory we still are in these matters."

The statistics and observations of Sir Victor Horsley on subtentorial operations and the fact that Cushing found it impossible to proceed beyond a decompression and cautious exploration in 14 out of 35 cases, obviously confirms a well grounded respect amongst surgeons for this region. The proximity to the bulb and the suddenly disturbed and readjusted intracranial tension after long residence of a cyst or tumor near the tract of organic representation, are in themselves sufficient to account for this care and patient conservatism in surgical manipulations in this field.

There is a class of cases which often affords great doubt as to a definite anatomic localization. These growths may be either solid or cystic; it is their situation which may give rise to considerable confusion. As a rule their position may be best determined by a process of exclusion in which the lateral recess, the vermis and bulb may be consecutively considered.

Cysts of the cerebellum may be pial or parenchymatous. The latter are not infrequently, if of long standing, the residuum of substantive hemorrhages or degenerated gliomata. They are as often found in the lateral recess and impinging on the bulb as within the lobes of the cerebellum. I have several times found them associated with solid tumors. They may be so deep seated as to be impalpable even by the most careful exploration. A case recently under observation of the writer is one in point:

The patient, a young man of thirty, first became ill six years ago. After a succession of colds he was sent to a ranch for nine months; he was greatly improved and returned to work. A year previous to his giving up his work he had vomiting attacks. His digestion was thought at fault and chronic adhesive appendicitis occasioned the removal of his appendix. The benefit was but transient and later he went to a celebrated clinic in the west, where no organic lesion could be found and he was pronounced a "cheerful neurasthenic" and advised to "return home and as far as possible live out of doors." The retina was not examined at this time. On his return his discs were examined, showing papilloedema, which together with vomiting, headache and uncertain gait, led to the recommendation of decompressive operation. Somewhat later this was abandoned because of an apparent improvement in the retina. Later his symptoms grew more aggravated. A Moro test for tuberculosis proved positive. Under the exhibition of tuberculin his nausea and vomiting made considerable improvement. Five months ago when through the courtesy of Dr. Cole and Dr. Thorpe he came under my care for surgical relief, his symptoms had again become aggravated. Nausea still persisted, his vision was decidedly impaired and occipital headaches constant, with papilloedema more intense in the left disc. Palpation showed the left occiput slightly more sensitive. Nystagmus if ever present was not constant. There was no interlacing of the color fields.

Exposure of the cerebellum showed thinning of the skull to a millimeter over the left lobe; a trifle thicker over the right. Pulsation was practically nil over the left lobe. On opening the dura and exploring both lobes and the lateral recesses neither cyst nor tumor could be discovered. Nevertheless the left lobe was soft and extended more than a centimeter through the cranial window. A few days after the operation the headache and nausea were relieved, but a week later it was apparent that the left lobe was again under plus tension, and a fortnight later it discharged fluid freely into the dressing. From the depth of the cavity and the amount

of gauze required to pack it, it was evident that a cyst of considerable size had been evacuated. Since the operation the papilloedema has practically cleared up and the nausea and headache had, until within a few weeks, greatly improved. A later observation shows the cyst to be refilling with aggravation of the headache, nausea, and uncertain gait. The patient has consented to a secondary and radical operation to be done in the near future.\*

This case shows the disappointment which may result even when a very ample exposure and double decompressive procedure are undertaken, where the growth is too deep-seated to be reached by finger or spatula exploration and where the manipulations were carried to the very border of a lethal issue. Cases of this sort and tumors too deeply complicated with the bulb for primary exploration fall readily in the category of those for which Horsley's two stage procedure is indicated. We may well quote Cushing's axiomatic doctrine here—that "safety is more essential than haste." There are conditions involving the retina and the nutrition of the patient which make it imperative that the intracranial tension causing the optic neuritis, vomiting and depressing headache be relieved with the greatest promptitude. In such cases a decompressive measure is distinctly remedial; and if the effective and radical extirpation of the growth cannot be done with safety at this first intervention it should properly be deferred until conditions are more favorable. It will frequently be found that the tumor or cyst will present most conveniently at the second exposure and may be easily extracted or packed out.

The reports in later years emanating from authoritative workers in intracranial surgery are decidedly encouraging and should inspire a definite and persistent effort and purpose amongst those of us interested in this field of surgery, to do more careful and painstaking work. We should encourage by every influence we may exert an early and precise recognition of the evidences of organic intracranial tension; and in this connection the minutest changes in the retina should be observed from the very beginning.

We cannot close with more fitting words than those of Harvey Cushing: "Earlier diagnosis and more prompt interference, a wider experience in overcoming the technical difficulties of these cases coupled with the courage to work slowly and painstakingly,—these things will lead to increasingly better results in this responsible work, the success of which depends so greatly upon detail, patience and the expenditure of time."

#### Discussion.

Dr. H. G. Brainerd, Los Angeles: I want to add a word in regard to the difficulty of diagnosis in these cases. The clearing up of the diagnosis in the last ten years has come almost entirely through the study of the eye, so far as I know. I wish to refer to the case twice mentioned this morning by Dr. Lobingier. This man was under my observation for ten years or more and the first trouble which he experienced was after prolonged work with his eyes, when he developed neurasthenic symptoms. He was relieved of these symptoms by a rest upon a ranch, and was able to resume his work as bookkeeper for two and

\* Since the above was written I removed a cyst containing an ounce of clear fluid from the center of the left lobe. The patient has made a good recovery.



a half years with brief vacations without real loss of time. Then he began to develop (this was five or six years ago) morning vomiting. After this he was lost sight of for a while. The next I heard was that he had had an appendectomy and was relieved of his symptoms. He got well and went to work again. Later, when visiting his family, I heard of him again—that he had been greatly benefited by taking atoxyl, and up to the time that I saw him—about six weeks before the operation—he had developed no cerebellar symptoms whatever, unless it was the vomiting. In the meantime he had worked again and then got worse and went East to a noted clinic, where he had been told that he was a neurasthenic. After he came home he had a course of tuberculin, which benefited him and relieved the symptoms. When I last saw him there were distinct cerebellar symptoms and I thought he had intracranial pressure but did not know where to locate the lesion. The symptoms had been shifting and part of the time were certainly neurasthenic. This all goes to show the difficulty of diagnosis. There was another, the case of melanotic sarcoma presented by Dr. Orbison. I saw the man just before he was operated upon and death occurred. He was a working man who had been digging a well, when another workman let drop a bar on his head, which had cut the scalp somewhat, requiring a few stitches. He had walked home a distance of a couple of miles and had gone to bed with increasing headache. Four weeks after that he was comatose with a history of steadily increasing stupor. His wife said he had always been well and strong and had had no injury or illness up to the time of the blow on the head. At operation we expected to find a hematoma, but instead of that exposed a melanotic sarcoma, and then for the first time learned the history of the removal of a sarcomatous testicle a few months prior. There is a point of importance in dealing with these cases surgically, and that is the danger of anesthetic—ether especially—in cases of cerebral growth. I have seen two cases that died of the anesthetic before the surgeon touched them and two other cases die as a result of the anesthetic immediately after operation.

Dr. Cullen Welty, San Francisco: In the diagnosis of cerebellar tumors there seems to be a great deal of confusion. Of all the men that have so far spoken, not one has grouped a certain lot of symptoms that are present in all cases, namely, deafness, vertigo and nystagmus. Before proceeding further, what other lesions might produce such symptoms? They are comparatively few and can be differentiated very easily. Acute Meniere's disease, fracture of the bone through the fibrous portion of the temporal bone, acute or chronic suppuration of the labyrinth. To return and analyze deafness, vertigo and nystagmus, it is quite essential that the examiner understand in detail the use of the tuning forks. We have two great forms of deafness that can be very easily differentiated. We have another form of common deafness (adhesive process) that is again easily differentiated from the other two forms. In the two forms of organic deafness, the ears are practically the same, there will be so little difference that a marked deviation from this established finding will attract your attention at once. So when you have a decided change, you must look carefully for other symptoms which you will be able to find. It is strange, however it is true, that the great majority of adhesive processes affect both ears equally. However, this is not to be relied upon so absolutely as in the other two forms of deafness—nevertheless they are usually about the same, at the same time an adhesive deafness is amenable to treatment and the organic forms are not. Again, the adhesive form reaches the same degree of marked deafness. With the simple analysis of deafness you can readily see that you are well on your way to a correct diagnosis. The other conditions that might be confusing at this place are as follows: Meniere's disease, fracture of the base through patulous portion

of temporal bone, acoustics tumor, and purulent, non-purulent affection of the labyrinth. As you can readily see it will be comparatively easy to study your case and make a diagnosis with the associated history. I started out calling particular attention to the associated symptoms—deafness, vertigo and nystagmus. It must be remembered that vertigo and nystagmus are always associated; at the same time you can have a physiological nystagmus. However, such nystagmus will be equal to the right or left, in contradistinction to an induced nystagmus, that will be more in one direction than another. Sometimes this is hard to determine; an instrument called by the name of an astigmometer will measure accurately this difference in degree. As to the form of nystagmus—horizontal, rotary or vertical is immaterial. It will be found that sometimes the nystagmus is to the right, left or horizontal. This is dependent on the location of the lesion or to the canal most involved. At the same time the position of the head will change the nystagmus,—this is dependent upon the position of the canal in relation to the head. Again, the new growth may be so situated as to cut off communication from Deiter's area, and you have a nystagmus from an overbalance of the canals. This can be proven or disproven by the caloric reaction. Deafness, vertigo and nystagmus can be produced by an acute or chronic suppurative pressure. The differential diagnosis between cerebellar tumor and semicircular canal is made easy by the fact that the cerebellar cases will fall in any direction, while those with a lesion of the semicircular canal will fall in a certain definite direction that is dependent upon the position of the head and the semicircular canal involved. The differential diagnosis between cerebellar tumor and cerebellar abscess following labyrinth operation, where the nystagmus has been to the opposite side and returns to the same side is proof positive of a cerebellar abscess. Equilibrium disturbances are quite characteristic and when studied in detail will produce positive and negative conditions that go far in further confirming the diagnosis. Only a few months ago Dr. Lennon of San Francisco reported five cerebellum cases studied in detail. In each and every one of these cases the findings of deafness, vertigo and nystagmus were quite apparent. In fact, the doctor called attention to the associated symptoms. Nystagmus and vertigo have been very carefully studied recently by Barrany of Vienna, and it is to him that we are indebted for these valuable aids in diagnosis. Where you have such definite findings the diagnosis should not be so confusing as some of the speakers would lead us to believe.

Dr. Mark Emerson, Oakland: Both these papers have been very interesting and instructive to me. Dr. Terry made no special reference to lymphatic drainage; perhaps it was not necessary, as that should be inferred. Yet I feel that some emphasis should be placed upon this feature. The lymphatics are more active than we give them credit for. The lymphatic edema which sometimes follows the radical operation for removal of the breast gives us an idea of what interfering with their drainage will do. Of the hundreds of inches of brain surface under tension, with intracranial troubles, the removal of a small piece of bone will do very little good if there is no permanent lymphatic communication established. Lymph spaces surround the dural blood vessels, and the degree of communication of these peri-vascular intracranial lymph channels with the outer lymphatic system will determine the permanency of your results, especially in internal hydrocephalics and other lesions where pressure symptoms are manifest. Instead of removing a round piece of dura as advised by the essayist, if a stellate piece is elevated and reflected over the knife-like edge of the thin temporal bone and tucked or sutured beneath the periosteum, we eliminate that annoying feature of clot or oozing from the injured delicate pia vessels forced out with the small or large hernia that follows, for the blood clot undergoes further degeneration, which prevents com-

munication, which is the important thing in this class of work.

Dr. W. I. Terry, San Francisco: In regard to the position during operation on the cerebellum, the elevated position of Krause would be good except for the manual difficulties of getting at the base of the brain, because considerable control of hemorrhage can be obtained by posture. Dr. Brainerd spoke of ether as being dangerous in these cases. That is true if you do not have a skilled anesthetist. Where you have a skilled anesthetist who devotes himself preferably to anesthesia, you do not need to fear that. Where the anesthetic is given without due regard to the patient's condition and where a large amount of anesthetic is given and the patient struggles, I think it makes a big difference. I am glad Dr. Welty spoke of the ear disturbances. They are very important. Dr. Emerson spoke about the decompression. There are cases on record of long standing cures and even some where the tumor entirely disappeared following a simple decompression. I had one man, a cerebellar case with a large tumor I could not remove in the cerebello-pontile angle. The man is still alive after four years with a hernia of the cerebellum. He was blind before I operated on him and still is. I do not agree that decompression is an unnecessary measure. The establishment of lymph drainage is probably important but I do not think turning the dura mater over the edges of the base is going to accomplish that alone. The dura mater should be removed in a decompression and certainly your lymph channels will be established between the brain and the muscle.

Dr. A. S. Lobingier, Los Angeles: Cushing in his Liverpool address described his experimental production of papilloedema by pure mechanical pressure on the brain itself; pressure was made over the dura at the time of operation and observations of the retina made at the time. It is his firm belief that papilloedema is a distinct pressure edema. The development of a true retinitis is a later substantive change.

Hysteria and disturbances referable to certain functional nervous conditions, gastric ulcer and many other conditions, have been constantly confused with intra-cranial tension, and I wish to draw your attention to the relation between the disturbances of the stomach and the retinal findings. One hears extended reports made in the examination of these cases in which the retina has almost entirely been ignored. If the contributors to this symposium have succeeded in giving sufficient emphasis to the necessity of observing the retina constantly in every suspected brain lesion, these discussions this morning will not have been in vain. Dr. Orbison called attention to early diagnosis. I think the specimens he showed were illuminating illustrations of what might have been done were an early diagnosis made. With regard to the question of posture brought up by a speaker, the semi-sitting position was first suggested by Horsley; Krause adopted this because he felt with Horsley that it produced anemia of the brain and much loss of blood would be thus spared. There is no question that in the ordinary brain operation the semi-sitting posture has its advantages. In the subtentorial cases it is obviously not advantageous. I think Cushing's posture in subtentorial operations is decidedly to be preferred. Of course Cushing elevates the shoulders. Horsley has emphasized in all his lectures the necessity of using chloroform instead of ether but it must be remembered he measures it accurately by the Vernon Harcourt apparatus, and has oxygen at hand to be used when the blood darkens. We have already alluded to the danger of spinal puncture. Dr. Terry referred to Horsley's new operation in respect to gumma. I do not believe any man is better able to speak on that subject than Sir Victor. There is a material advantage he thinks in relieving the intracranial tension before anti-syphilitic treatment is undertaken. Cushing has advocated an admirable technic in subtentorial exposures whereby a large covering

of fascia and muscles is preserved. I have a number of times found advantage in this protection where a large amount of bone was necessary to be removed.

I think Dr. Welty has scarcely heard all that has been said in respect to the necessity of examining the ear carefully in subtentorial growths. I no more think of making a diagnosis in these cases without having the ear gone carefully over than I do of not having the eye examined. I mentioned nystagmus and vertigo and think they have a very close relation to the ear itself and also to any growth or tension in the subtentorial region.

## FUNCTIONAL INSUFFICIENCIES OF THE MYOCARDIUM.\*

By H. D'ARCY POWER, M. D., San Francisco.

I have not chosen the subject of this paper on account of any new light I can shed upon an old story nor have I any extensive series of cases to record but, because in the daily run of general practice, the victims of the condition I am to deal with, are numerous and constitute an important element of our clientele. Yet, nevertheless, their symptoms are too often misinterpreted; sometimes, perhaps, unavoidably so. By relative functional insufficiencies of the myocardium, I refer to all those cases in which the heart is unable to perform its normal work, within reasonable limits of strain, without subjecting its owner to discomfort or distress, and in which there is no ground to affirm gross or microscopic changes in its structure. This last statement is not intended to cover temporary alterations of form or position. Nor is it proper to include therein conditions of pain or discomfort without manifest insufficiency. It is needless to thresh over the question as to whether functional insufficiency can exist without a morphological basis. It is safe to affirm that structure is as dependent on integrity of function as the reverse.

In our daily practice, we meet with two distinct classes of cardiac affections. First, organic lesions manifesting the well known indications of valvular defects, myocardial degeneration and change. These conditions may be compensated or latent, but they do not admit of a *restitutio ad integrum*, and they are at all times possible of recognition. Secondly, the cardiac neuroses, that under many names, and with a varied symptomatology, are, for the most part, reflex manifestations of disease elsewhere. Precordial pain, false anginas, tachycardias, and bradycardias, arrhythmia, and vaso-motor ataxias, constitute a numerous and increasing class of ailments that can exist transiently, or some times permanently without either clinical signs or organic change in the heart. There is a third group in which physical examination either fails to reveal myocardial change, or such alterations of form or action as may from time to time occur, are variable or impermanent, and not discoverable post mortem. Nevertheless these patients manifest symptoms that are only explicable on the assumption that the heart is, at the time of their occurrence, unable to adequately perform its functions. Thus we have individuals in whom all exertion is ac-

\* Read before the Forty-first Annual Meeting, State Society, Santa Barbara, April, 1911.



complished or followed by dyspnea, possibly by tachycardia, and precordial oppression. Yet others in whom these symptoms supervene on physical disturbance or secondary to the vascular strains incident to digestion and other physiological processes. Such manifestations of failure may even lead to temporary dilatation with visceral congestion and edema, all of which may eventually pass away without obvious permanent effect. And, finally, a most important group of cases in which, without any pre-existing cardiac affection, the insufficiency accompanies, and seemingly has its origin in an increase of body weight over and above the physiological requirements. In all these forms symptom complexes occur that do not materially differ from those of organic insufficiency, and thus prognostic errors are of frequent occurrence.

The symptoms may be shortly enumerated as follows: Dyspnea on, and sometimes without, exertion. Tachycardia, occasionally bradycardia. Precordial pain. Dizzy sensations, or full vertigo, especially on sudden rising. Coldness of the extremities, with venous congestion. Sense of bodily oppression, and mental depression. General muscular weakness. Distressing pulsation of the arteries. To these must often be added the physical evidence of temporary dilatation of the heart. These symptoms vary in their incidence and grouping in accordance with the underlying causes of the insufficiency and its immediate pathogenesis. An analysis of the proximate factors will show:

First—A congenitally defective cardiac reserve.

Secondly—Insufficiency of musculature for normal work.

Thirdly—Toxic depression of the myocardium.

Fourthly—Abnormal demand on a normal musculature.

Fifthly—Mechanical interferences with cardiovascular relations. The recognition of these factors is of prime importance both from the standpoint of treatment and prognosis.

*Group I. Congenitally Defective Reserve.*—We must recognize a group of individuals whose cardiac reserve is congenitally defective. As children they are unable to run as well as their fellows. Later in life, under the strain of physical training, or of their occupation, they show the same inability to meet requirements that are readily borne by their fellows.

The heart works under somewhat different conditions to other organs. While like them it possesses the power of doing a much greater amount of work in a given time than it is regularly called upon to perform, yet its individual contractions are maximal, and bear the disadvantages that attend muscle work under such circumstances. Thus the amount of work accomplished by a muscle increases with the work (or load) put on it, up to a certain point, and then rapidly decreases. In the heart this point is already attained, therefore fatigue is more readily evoked. When a heart is worked beyond its normal capacity it usually increases in power and mass; whether this entails a diminution

of its ratio of reserve is not decided, but there is much reason to believe that it does. The class of patients under consideration may pass the ordinary conditions of life with no evidence of their deficiency, though it readily becomes manifest under strain. Nor is it necessary in such cases to posit hypoplastic or abiotrophic conditions. The muscle cell varies in its potential energy apart from the question of mass as is seen in the difference between its varying contractile power in different animals.

*Group II. Muscular Insufficiency for Required Work.*—This may occur in two very different ways: (a) Excessive activity of other muscles; (b) excessive weight of the body leading to vasomotor strain. The first group is well known under the heading of primary heart strain. Excessive muscular work has resulted in such an increase of peripheral resistance that the muscle fibres elongate, a condition that is more difficult to recover from the longer the period thereof, in accordance with the well known law of muscle fatigue. The second condition is, in the opinion of the writer, the most prolific of all causes of relative cardiac failure. There is for every individual a normal physiological body weight, though this is not invariably the figure given in tables of height-weight ratio; when this physiological weight is exceeded, the entire organism is put at a disadvantage and no part thereof more specifically than the myocardium. It is worth while to consider this a little in detail. Height is determined by the size of the skeleton; weight by the size of the organs, the mass of the muscles, and the amount of panicleum necessary to protect from loss of body heat. The mass of the organs are subject to inconsiderable variations. The muscle weight is probably never unphysiological, it is measured by its utility and promptly disappears when not needed. Fat exists as a food reserve and for the regulation of temperature. Man has little need of it in the first capacity, and in the second its use is dependent on climate and mode of life. The individual living in a temperate or warm climate and actively employed has little need of protection against too rapid radiation of body heat. It is therefore sufficiently evident that with the majority of men fat subserves a small physiological purpose. Moreover excess is a positive detriment both direct and indirect. Every pound of extra fat is a dead load to be carried with every movement of the body. Many an individual of sufficient weight puts on an extra twenty pounds with much complacency, whereas he would regard the perpetual carrying of twenty pounds of lead on his back as an intolerable burden.

In a vague way the impression prevails that carrying an excess of body weight does not entail the same exhaustion as packing an extra-corporeal load. The fact is that the exact reverse is true. Guntz and Schomberg have shown that a soldier marching with a pack weighing forty pounds can do so with an expenditure of energy about 10% less than would be needed to move an equivalent increase in his weight. A little thought will show that this increase in expenditure is due to the extra

strain involved in driving the blood through the unnecessary tissue area; a tax that falls directly upon the myocardium; even though adipose tissue be but slightly vascular, nevertheless the increase in capillary bed, whose friction has to be overcome, involves a great increase in the heart's work. That this is so is evident enough, even in the robust, for there are few fat individuals who can exert themselves without some evidence of hurried breathing, which is direct testimony of a left ventricle struggling with an excess of load. As we shall presently make evident the concurrence of other factors build up a vicious circle of the gravest nature.

*Group III.—Toxic Depression.*—That we have muscle poisons, and heart muscle poisons, in particular, is well known, leaving aside drugs, there is tobacco as an example, and probably unknown metabolites and bacterial products from the intestine. The depressive effect of the metabolites of muscular activity is fully attested by direct experiment. It can scarcely be doubted that similar bodies from other tissues are responsible for the general muscular weakness and relative myocardial failure in neurasthenic states. No case of seeming insufficiency of the heart can be rationally treated without a full consideration of such a possible toxic basis, and quite often the prognosis rests solely on the question of their possible elimination. We all know how absolutely true this is of the smoker's heart.

*Group IV. Abnormal Demand on a Normal Musculature.*—This may occur in two ways. (a) The rate of the heart may be increased, other factors remaining unchanged, this means increased work and can lead to even fatal dilatation as sometimes occurs in paroxysmal tachycardia. Such stimulation may be entirely due to disturbance of the central nervous system, and in this form is a prolific source of myocardial insufficiency. Under the influence of anxiety, business stress or severe study the heart rate may remain hypernormal for long periods. A double injury is effected for the total heart work is increased, whilst the shortening of the diastole prevents such a feeding of the muscle as is necessary for a compensating hypertrophy. There is no commoner cause of ruptured compensation in organic affections than the increase of heart work by these psychical influences. We may well believe that in these cases the normal cerebral inhibition of the heart through the vagus is weakened by the concentration of brain work in the psychic areas. Similar increases of heart rate with like result follow the use of certain foods and drugs; tea, coffee and strychnia thus affect the heart, and as these substances are frequently taken by those laboring under mental strain the heart is placed under a double burden.

Different in nature but even more serious in result is the frequently existing concurrent stimulation of the vasomotor constrictor system. The absorption of the brain energy in psychic work leads to lessened peripheral control, and this becomes manifest in hypertonus of the arterial system. To increased heart rate is added heightened blood

pressure. Little wonder is it that under such conditions we should meet with relative insufficiency. Under the same heading, though occurring under quite other circumstances, must be classed the very numerous cases of arterial hypertonus resulting from circulating toxins, the products of defective metabolism, intestinal absorption or a liver deficient in depurative power. It seems to the writer that too much care cannot be given to the individual recognition of those various factors in any given case. Only thus can a rational treatment be instituted.

*Group V. Mechanical Interference With Cardiovascular Relations.*—Although we know that under extreme conditions of gastric dilatation the fundus may rise high and exercise no small pressure on the diaphragm; yet there is little evidence to indicate that direct pressure is responsible for cardiac distress. The fact that clinically it has been noted that extreme gastric distension is associated with bradycardia suggests that the common arrhythmias and tachycardias of our flatulent dyspeptics are not due to such direct mechanical interference. If gastro-intestinal distensions do not act directly we must then seek a neural via for the undoubted effect, and two distinct channels are easily found. The distension of a hollow viscus is always irritative to its nerve endings, and reflexes are easily started, ending in the heart. Thus Dr. C. F. Hoover quotes a case where the act of swallowing caused intermission of the heart, the reflex arc running over the inferior laryngeal to an abnormally irritable vagus center. Secondly, the visceral irritation may be expended on the vasomotor centers controlling the splanchnic area, resulting in the dilatation of its immense capillary bed and a consequent dislocation of the circulation. Let us note that this means feeble circulation in the extremities, cold hands and feet, diminished blood supply to the brain, with mental depression and lessened ability to perform intellectual work; defective nutrition of the centers and thus loss of control of the heart itself as well as other organs; and we readily see that in this single effect of gastro-intestinal distension, we have an all sufficing explanation of one of our commonest symptom complexes—a syndrome that may or may not be accompanied by manifest evidence of cardiac insufficiency.

Such, briefly, are the fundamental factors in all forms of functional insufficiency. Cases occur in practice in which practically all are present; more commonly they are grouped and stand in a mutually provocative interaction. The individual with a congenitally defective reserve and an irritable nervous system, further adds to his cardiac disabilities by the use of drugs or stimulants that increase the daily labor of the myocardium.

Or take the common instance of the primarily sound man, who through constant excess exhausts the depurative power of the liver and the excretory ability of the kidneys. He is only too likely to combine toxic depression of the myocardium simultaneously with toxic irritation and contraction of the peripheral arteries. The load is increased while the driving power fails. Or lastly, that large



group of cases where without original weakness or acquired abuse, the body weight becomes in great excess of physiologic requirements. The absorption of the heart energy in unnecessary work will, in accordance with the principle that the over use of one muscle entails the loss of energy in the rest, lead to generally diminished activity, building up a vicious circle of increasing disproportion between the weight and work. The increased metabolism induces strain on the excretories, and their failure involves retention of metabolites and a new cardiac strain, through a toxically induced hypertonus of the arteries.

What wonder is it that obesity, gout (with all its relations) and heart failure stand in close relationship. This particular relation of obesity (even in mild degree) to heart strain is one that has greatly interested me. I have had the opportunity of watching the development of several such cases. I have seen in an otherwise healthy young female in whom the other factors were excluded, the evidences of myocardial weakness and dilatation of the heart wax and wane with the body weight and ultimately disappear with a final approximation to a normal adiposity. I am assured by the results of treatment that in many of the middle-aged that reduction of weight is alone needed to restore the balance between heart work and body work. It is a rather curious fact that this relation of the mechanical work of the heart to that of the organism is but little dwelt upon in text-books of physiology and no vivid realization of its import is present among the mass of medical men. Partly out of curiosity and partly in the search for further information on the subject, I recently inquired of a number of my colleagues what proportion of the daily expenditure of energy is to be allotted to the heart, and none seemed to know, even approximately, nor did the text-book enlighten them. Accepting 300 gram-meters as about the average energy of a single heart contraction, the heart labor per hour would equal about 1000 Kg. M.,—as light muscular work expends about 5000 Kg. M. in the same period,—the work of the heart as compared to the muscular work of the body is about one-fifth. Taken in another way we may accept the estimate that the daily work of the heart is equal to two hours of severe physical labor, as a man cannot keep up such labor more than eight hours, we obtain a relation of one to four. Now in obesity the hypernutrition is diverted from and not to the musculature of the body, and the tendency that is present in the athlete or laborer to develop the heart *pari passu* with the other muscles is wanting, so that in the apportionment of a daily expenditure in terms of muscle work the heart is at an increasing disadvantage. The great significance of these facts lies in the natural corollary that the excess of weight should be reduced by subnormal feeding rather than by excessive exercise. It is self evident that if the food intake falls below the minimum caloric expenditure, the balance must be made good from the starved adipose tissue and the weight will fall. If at this time physical exertion is added, while it may more rapidly decrease the weight it

will add materially to the work of the heart and may easily cause trouble. If a rapid decrease is desirable, it is better effected by starvation and sweating than by work.

It is pertinent to note at this place that in conditions of general malnutrition the heart is equally at a special disadvantage, for the reason that while it uses up one-twentieth of the normal income its weight is only one two-hundredth; that is, it requires proportionately ten times as much nourishment as the body.

In planning this paper I expected to deal with the treatment of these cases, but time limits compel me to relegate this to a future occasion. It but remains to summarize my conclusions:

First—There are a group of cases in which, without organic change, the heart is unable to functionate normally.

Second—While the symptoms may be the same, the underlying pathogenesis may be widely different and is susceptible to analysis into the classes enumerated in this paper.

Third—No correct prognosis can be made or rational treatment instituted until these pathogenic factors have been recognized and assigned their proper value.

Fourth—The need for correct treatment is imperative, for if the insufficiency is merely palliated and its causes not removed, perverted function will ultimately lead to organic changes.

#### Discussion.

Dr. W. F. Cheney, San Francisco: This, of course, is distinctly the day of the myocardium and we are working under the theory of myogenic origin of most heart symptoms. Just at the present time the great majority of trouble is with the myocardium. There is no doubt about the vast importance of this part of the heart. There is also no doubt about the possibility of what Dr. Power has said to us to-day being correct, but after all it seems to me the practical point is to be able to determine if possible when the heart muscle is really diseased and when there is simply a functional incompetence. As he says, the symptoms are practically the same whether the trouble is one of true organic change in the walls or whether it is simply an inability of the heart muscle to meet the strain put upon it. In other words whether we are dealing with a functional disease of the heart or whether a true organic disease of the heart, is one of the difficult problems to solve. As I heard Dr. Osler say: It is a very disagreeable matter to tell a man that the symptoms of which he complains indicate no particular trouble with his heart and to read the next morning in the paper of his death. This is not uncommon. That means that with the best ability and study and care we are not always able to discriminate whether the trouble is functional or organic. Dr. Power has not gone into the subject of the means by which we discriminate. That is most important. The findings as he has outlined them are the same as far as the physical examination is concerned. By the ordinary methods, the condition of the pulse to the finger, determining sounds with the stethoscope—there is no possibility of detecting any fine change and yet at this time we have more than the everyday methods of examination of the heart that carry us beyond the old ordinary physical methods. Not to go into detail, we have the determination of the venous pulse, we have the determination of the blood pressure, we have the X-ray, and we have something new, the electric cardiogram. With all

of these finer methods it is gradually going to be possible to tell our patients whether they have simply a functional disturbance or whether they have a change in the structure of the muscle. Not until that time can we give a fair prognosis. We cannot begin to say whether that patient is in danger of immediate or sudden death or whether the condition is a harmless one. At the present time we all are subject to error. It is only by the addition of these methods and general acceptance of these methods that we are going to be able to eliminate error. There is scarcely any other organ of the body, where, after doing our best, we are still unable to reach an accurate conclusion.

Dr. F. M. Pottenger, Los Angeles: The trend of recent study in the field of the circulatory system has shown that the condition of the heart muscle is far more important than the murmurs which are often heard. It is easy to understand how the heart muscle must be influenced by the various toxins which are circulating in the blood. We often see the effect of this in acute infections. The effect of athletics upon the hearts of growing children is a very important subject. We all know that many young men are injured for life upon the athletic field because of heart strain. Such things should not be permitted by the school and university authorities. It is time that the medical profession is taking a decided stand on this point.

The influence upon the heart of large increase in body weight is a question well worthy of thought. It is commonly observed that men who are very fleshy, especially if they have a much greater amount of body weight than their height and their age would warrant, are prone to suffer from diseases of the heart and kidney. This is probably due to the fact that these two organs are overworked in taking care of the weight in excess of what they were intended to care for.

I have had abundant opportunities to observe the effect of rapid gain in weight upon the heart in tuberculous patients, especially those suffering from advanced tuberculosis. These patients as a rule are soft, they suffer from shortness of breath, their weight is mostly fat and instead of indicating a condition of good nutrition represents really a state of weakness. The old method of feeding the tuberculous patients with enormous quantities of food, expecting them to put on three to five pounds of weight a week and keep this up until they had far surpassed their normal weight without taking into consideration the power of the heart, has been disastrous in many cases.

I have learned that a gain of one pound a week or two pounds a week, if the patient has lost considerable, is far more satisfactory than rapid increase in weight.

I have had the opportunity on a number of different occasions to observe the development of myocardial change and cardiac dilatation in patients suffering from pulmonary tuberculosis. The symptoms which were first shown in these cases have been slight nervousness, insomnia and rapid action, also slight dyspnea. These symptoms are usually slight for several days before the final break in compensation. If we wish to serve our patients, who are suffering from cardiac disturbances best, we will pay more attention to the condition of the heart muscle itself and less attention to the blowing murmurs than we formerly did.

Dr. D'Arcy Power, San Francisco: I can add little to what I have already stated in the paper, but it seems necessary to emphasize the fact that refinements of diagnosis can never afford a basis of interpretation of these cases; and for a very good reason. The signs revealed by physical examination yield us information as to size, thickness of walls, strength and order of movements, but, they can give no account of the nature of the underlying structural changes of the myocardium whereof they are the expression. It must be clearly realized that an insufficiency is the same whether it be of

organic or functional causation. Its nature must be determined by a consideration of the accompanying and secondary phenomena and it is to the elucidation of this often very complex problem that I hope the classification I have given may afford some help. Dr. Pottenger's remarks on the bad effect of excessive feeding are of the greatest interest to me, it adds increased strength to the conviction that I have long held that we have no greater enemy than too much fat.

## THE TREATMENT OF HEMOPTYSIS IN TUBERCULOSIS.\*

By MAX ROTHSCCHILD, M. D., San Francisco.

One of the most erratic and most alarming symptoms in tuberculosis of the lungs is hemoptysis,—erratic because we see many cases of advanced phthisis which never have had a hemorrhage, or even a trace of blood in their sputum; and we see other cases in which a sudden hemorrhage is the first symptom of the disease. I have at present three cases under treatment, which have practically no cough and no expectoration. One of these (a young Spanish boy sent to me by Dr. Fehleisen) twice was near death from severe hemorrhages; and in this case, as well as in the two others—which I will discuss later on account of their interesting courses—it was difficult to locate the spots which caused the bleeding. On the other side, I have seen, as we all have, a great many cases of advanced phthisis which never have had a trace of blood in their sputum: some of them died without ever having a hemorrhage, others had only slightly discolored sputum at times. One can never say when a hemoptysis will occur, and one cannot prevent it. It would be useless to speak about the alarm which a hemorrhage causes even in cool-headed and brave patients, and the terrible excitement it produces in nervously inclined individuals. It is a constant menace to all patients who are suffering from a phthisis, and this menace is never removed until the patient is entirely cured.

The treatment of a sudden hemorrhage is sometimes quite difficult. If a patient shows bloody sputum, we are able to guard against an imminent hemoptysis through absolute rest, morphin, ice, etc., but if a sudden and intense bleeding starts, what is the best, the quickest, and the surest way to stop it?

I do not intend to discuss in this paper the different drugs and manipulations which have been in use. They are too well known to every practitioner—and every practitioner knows fully as well that all these drugs and manipulations are unreliable. Sometimes they seem efficacious, other times they do not. Sometimes the bleeding stops—possibly as a result of the drug used or as a result of the absolute rest, or possibly of its own accord, because the patient may have lost so much blood that the reduced blood pressure makes coagulation easier.

\* Read at the Forty-first Annual Meeting of the State Society, Santa Barbara, April, 1911.



The more modern remedies, such as gelatin, calcium chlorid, adrenalin, amyl nitrite, are also unreliable. The gelatin perhaps acts the best if properly given. I have used it a great deal, and while it has evidently been of service in some cases, it has not had the desired effect in others. The tight strapping of the side from which the bleeding arises with adhesive plaster works well at times, but this is also unreliable.

Under these circumstances it seems that any method which appears to give more definite results, should be most welcome; and these results seem attained with the production of the artificial pneumothorax. The method was first introduced by Forlanini for the treatment of tuberculosis, and has since been used in many clinics and sanatoria with more or less good results. The technic of the operation is simple and may be found in the publications of Brauer of Marburg, Lucius Spengler of Davos, and Murphy of Chicago, as well as in the publications of Forlanini himself. The most important contraindication, in the opinion of all authorities, is a severe lesion in both lungs.

Forlanini gives the following three indications for the production of an artificial pneumothorax:

1. In uncomplicated cases of one-sided phthisis with slow or subacute course and with free pleura, without regard to the degree of the lesion.
2. In cases where adhesions exist, if these adhesions can be removed by artificial pneumothorax.
3. In cases of double-sided phthisis which do not show an acute course, and where the lesions in both sides are not far advanced.

Karewski, in his paper in the *Zeitschrift für Tuberkulose*, Vol. xiv, Part 6, discussing the newer methods of surgical treatment of tuberculosis of the lungs, speaks well of the artificial pneumothorax. He says, however, that it is only indicated when all physical and dietetic means have been exhausted, and that it is absolutely contraindicated when the other lung is involved. The autopsies of patients who were treated with artificial pneumothorax, but who died in spite of its use, showed that the clinically observed improvements corresponded with the post mortem findings. In the lung which was artificially compressed were found a large amount of interstitial tissue and indications of scar formation; only a very few fresh tubercles were found and these contained a surprisingly large amount of dry, cheesy degeneration; *in toto* signs of a reparative process. He also found that in the clinical picture of properly selected cases, the weight of the patient increased and the general condition improved considerably; he noticed a decrease in the number of bacilli, and a disappearance of the elastic tissue in the sputum, which itself became less and often disappeared entirely.

The latest publication, which only appeared about four weeks ago, is a collection of cases by Brauer and Lucius Spengler, in Brauer's *Klinik der Tuberkulose*. It gives a report of 102 cases, each case described in detail, and afterwards shortly and exactly discussed. In the last one of these 102 cases the indication for the treatment with artificial pneumothorax was a very severe hemoptysis. The patient, who was in the end of the third stage, died

two and a half weeks after the operation, and at the autopsy it was impossible to find a ruptured or lacerated blood vessel. This is the only case which I can find in the entire literature where a hemoptysis has been made the indication for an artificial pneumothorax.

It had appealed to me, ever since I read Forlanini's first publication, that a good compression of a bleeding lung with nitrogen should act like the compression of a blood vessel during a surgical operation; and for this reason, and also in consideration of the fact that we know of no remedy which will stop hemorrhage with certainty, I have for the past few years treated all cases which came under my observation, and which showed an obstinate tendency to bleed, and where none of the above mentioned contraindications were present, with artificial pneumothorax; and in every case, without a single exception, I have been able to stop the hemorrhage promptly.

Last September I read a paper on this subject before the State Medical Society of Nevada. With Dr. Fehleisen of San Francisco, I had already used the method in quite a number of cases of tuberculosis; the report and reprint of that work will appear shortly. So far as known to me, hemoptysis has not been considered a special indication for this operation, with the exception of the one case (No. 102) recently published by Brauer and Lucius Spengler; and yet it seems to me to be the one complication in which the most satisfactory effect of an artificial pneumothorax is evident. It also appears to be a logical operation—the diseased lung can obviously be kept a great deal more quiet if it is compressed by nitrogen than by either an opiate or an adhesive strap. So far I have used it in fifteen cases, and naturally this report is to be considered a preliminary one. The cases have not been long enough under observation to make deductions in regard to ultimate cures—and that is not the object of this paper anyway—but, as mentioned before, in all our cases the compression has stopped the hemoptysis promptly. The operation itself is simple, if properly performed seems to be harmless, and can be done quickly. The only difficulty is in choosing a proper place for the first inflation. One must be sure that adhesions do not exist between pleura pulmonalis and chest wall. The needle is connected with the nitrogen tank and also with a manometer, and a negative pressure in the manometer, followed by fluctuations with in- and exhalations, shows distinctly whether the point of the needle is free in the pleural cavity. It is wise to make an incision for the first inflation, and to then let in enough nitrogen to get a neutral pressure in the manometer. At the second inflation it is easy to find the original air bubble through percussion. Some of my cases have been seen by Dr. Freytag, who was kind enough to take X-rays of those cases where it was difficult to ascertain from which side the bleeding originated, or where we wanted to be sure that the other side was not involved in a tubercular process. The following cases may be of interest:

A young servant girl about twenty years old had been expectorating blood without having much cough or any other pronounced symptoms. There was no

considerable loss in weight; she looked well, and was able to do her work. The upper lobes on both sides showed sharp breathing during exhalation, and only on the lightest percussion was a slight dullness evident over the left upper lobe anteriorly. She went to the Walker Hospital in the beginning of May, 1910, and after a couple of weeks' rest and treatment she had very little cough, and very little sputum, which was entirely free from blood. She had gained four pounds during the two weeks, and could stay in bed no longer on account of lack of means. She took gelatin internally from the start, but she had left the hospital only three days when she again began to expectorate blood. This lasted for six weeks. Whenever she stayed quietly in bed for a couple of days the blood disappeared; as soon as she got up she expectorated blood again. With the kind help of the Associated Charities I was able to take her to our Sanatorium in Belmont, where we inflated her the end of July. We kept her in bed about three or four weeks, and re-inflated according to the necessities of the case. Then the patient got up, and is now working as one of the upstairs girls in our Sanatorium. The left lung, from which the bleeding came, is still compressed, but she is able to get around quite lively without any apparent shortness of breath, and she has not had even a trace of blood in her sputum since the first inflation.

A very similar case is that of a young man about twenty-eight years old. He had been a clerk in a dry goods store, and his sickness began with a hemorrhage. He had been part of the time in the country, part of the time in a hospital in Oakland, and had been under treatment for four months; but whenever he started to walk he began to expectorate blood. He went to the Walker Hospital the first of April, 1910; he had no fever, and but little expectoration, which was almost entirely blood. Very frequently he expectorated about a small wine-glassful of pure blood. We inflated him for the first time on April 11th. After the first inflation, which was evidently not sufficient, he continued to expectorate blood, but not quite as much as before. After the second inflation, which produced a high positive pressure, he did not expectorate blood, and has not done so up to date. He is walking around again and is doing quite a little work on a small farm in Los Gatos. This case is interesting on account of the difficulty of locating the diseased side. The man evidently had an old process in the left lung, which showed sharp breathing. The same sharp breathing, without any rales, appeared on the right side. The X-ray taken by Dr. Freytag showed spots in both lungs, but more pronounced in the right side. This harmonized with our findings, and so we inflated the right side which proved to be correct.

All the other cases which we have treated so far, reports of which will appear in print, have shown the same good results in regard to cessation of the hemorrhages, and I feel justified in recommending the treatment of hemoptysis with the artificial pneumothorax, according to Forlanini's method, for your consideration.

#### Discussion.

Dr. C. C. Browning, Los Angeles: The subject is an exceedingly interesting one and certainly this paper is of more than ordinary interest in that it has dealt chiefly with the new method employed in these cases—addressed specifically to this particular symptom of hemoptysis. As this is in the nature of a preliminary report, I shall look forward with a great deal of interest to further observations in this particular field. The proper consideration of hemoptysis in phthisis must first be founded upon the causes which produce hemoptysis and for that reason there is no one method that can be applied to all cases, so that with the difficulties which we meet we certainly welcome all that promises aid in this distressing and occasionally fatal symptom, and more frequently indirectly fatal complication. The occasion of hemorrhage may generally be said to be

due to a condition of the blood vessel accompanied by increased blood pressure, so that for those who are predisposed to hemorrhage as well as the ordinary treatment of the case, the phase we can most readily combat is the decrease in blood pressure, because the disease of the blood vessel is beyond our control. Another factor most desirable, is the eliminating of exercise either physical or mental. And another feature to be mentioned is that of atmospheric pressure. I made a series of observations while connected with the Sanitarium extending over a year and a half, in which time the barometric pressure was recorded and compared with the charts showing different degrees of hemorrhage from slight color up to profuse hemorrhage occurring among our patients and we found that at such times as the barometer varied within 24 hours 10/100 of an inch or more, more than  $\frac{3}{4}$  of the hemorrhages occurred in our patients. It is also true that at such times the patients who suffer from bronchorrhea suffer more at these times. We have also noticed that our hemorrhages occur in groups. With patients having a tendency to hemorrhage the treatment is greatly aided by keeping the patients quiet, thus reducing the blood pressure as much as possible and giving some remedies known to reduce blood pressure. Another agent that has been spoken of frequently by men in sanatoria is tuberculin. It is the consensus of opinion that patients while under tuberculin treatment are less subject to hemorrhage than they were previous to treatment. It is also said that the proportion who have not had hemorrhage previous to treatment, after treatment is very small. This is attributed to the infiltration about the seat of the tubercular process. I have had no experience with the special treatment recommended by Dr. Rothschild. We are all aware that attention was drawn to this treatment 20 or more years ago and then it subsided to a certain extent and was later revived again by Murphy of Chicago. It was my fortune to have under my care one of Dr. Murphy's patients who had been treated by a production of artificial pneumothorax. This patient was under treatment about six months. The results were not especially encouraging, but in the light of later work done along this line, it is possible that longer treatment might have resulted more satisfactorily. The patient had numerous hemorrhages and the disease finally resulted fatally. The fact that only comparatively few patients may be suitable for this treatment is no argument against it, for if it is of value in a certain class of patients, it is equally important to them. My understanding is, that where the lung has been kept compressed from one to two years, generally the lung becomes a mass of fibrous tissue, thus rendering it of no value for future use. The question naturally arises, what length of time the author of the paper would suggest to keep a lung compressed when he had compressed it for the relief of hemorrhage. Would we be justified in keeping a lung compressed until it should lose its function to avoid the dangers incident to this complication? I desire again to thank Dr. Rothschild for bringing this subject before us, for it approaches the control of this complication from the standpoint of the control of hemorrhages in other portions of the body, and I shall await with more than ordinary interest, further reports.

Dr. F. M. Pottenger, Los Angeles: The more I have to do with tuberculosis, the less I know about hemorrhage. I have studied this subject a great deal and have attempted to classify the various kinds of hemorrhage, so that I might arrive at a rational method of treatment, but so far I have nothing that I can offer.

Regarding the suggestion of artificial pneumothorax as made by Dr. Rothschild, I cannot feel like enthusing over it. I cannot feel that it is practicable in many cases nor can I believe that an indication for such interference would come often in practice. I know that these cases which bleed more or less constantly are very distressing and difficult to



handle, but personally I would hesitate to perform an artificial pneumothorax upon them as a remedial measure. My method of treating hemorrhage has always consisted of very little interference. I aim to quiet the patient in every way possible, keep him perfectly at rest physically. If the hemorrhage is large, not even allowing him to move his hand or foot, quieting his nervousness, and aiming to relieve him of all fear. By so doing we take away those things which raise blood pressure and in this way aid in stopping the hemorrhage. I do not believe in examining a patient during hemorrhage, in fact, I do not turn the patient over nor allow him to move from side to side, but keep him lying quietly. Personally I have had considerable difficulty in being positive that I was locating the point of hemorrhage. As soon as the blood trickles out into the lung it usually finds its way into distant parts from the point of bleeding and unless there is a constant oozing which produces a localized point of constant moisture, it is a very difficult problem to be sure that we are right in locating it, and if the hemorrhage is large in size at all the blood is inclined to find its way into both lungs and makes it very uncertain where the bleeding is coming from. I am not in the habit of using much morphin in the treatment of hemorrhage. I use as little as possible, and never give it unless the patient is extremely nervous or the cough is extremely troublesome. When I do use it I employ small doses, usually giving 1/16 grain hypodermically. I find that this has a quieting action without benumbing the sensitiveness of the bronchi and favoring pneumonia. I rely more particularly on such measures as are known to reduce blood pressure, the nitrates and especially veratrum viride. I have never felt that the coagulability of the blood is at fault. I have yet to see a case where I felt that it was necessary to increase coagulability, on the contrary we very often find it difficult for a patient to get the blood out of his mouth, it coagulates so quickly. If pneumothorax were to be produced we would have to have certain conditions present. We could not have an adherent pleura, and the other lung should be practically sound, a condition which is not usually found, especially if the disease has extended beyond the early stage. I believe that the operator should be thoroughly conversant with the patient. I do not believe it would be wise to undertake this procedure upon a patient whom he was seeing for the first time, and the operation to my mind should be performed only in a hospital or sanatorium where the patient would be under the constant care of the physician. While I would not want to discourage anything that offers benefit to these cases, I personally should prefer to follow out treatment along the lines which have given me good success and not endangered the patient.

Dr. H. D'Arcy Power, San Francisco: While I have no personal experience of arresting hemoptysis in the manner advocated, yet I realize that we are here dealing with a method that is at least physiologically sound. This is by no means always the case with lung therapy, and we still find men using ergot and adrenalin, notwithstanding that it was definitely demonstrated by the careful experimental work of Dr. Carl Wiggins that the total blood flow through the lung is increased by the administration of adrenalin. That artificial pneumothorax has dangers may well be admitted, but so has persistent hemorrhage; and be it remembered it is just as easy to decompress as compress the lung if a mistake is made.

Dr. Rothschild, closing discussion: Dr. Pottenger is correct in two respects, namely, that it is wise to interfere as little as possible in cases which have hemorrhages, and also that the method is not one for the general practitioner. But I am not talking about cases which bleed a little and then stop; or about cases which have a severe hemorrhage, perhaps another, and then stop; in such cases I should

not think of operating. I do not by any means want to create the impression that as soon as one of my patients shows blood in the sputum I produce an artificial pneumothorax. If the hemorrhage is easily controlled, and does not recur too often, we treat it in the usual old way; but I am talking chiefly about cases in which the hemorrhages are very profuse, and obstinate in their recurrence. It is also useless for me to state that I do not move the patients unnecessarily, and that if the patient is brought into the operating room, it is done most carefully. That is only common sense, and any man, with any experience at all, would be careful about those things. I also agree with Dr. Pottenger that the operation is not one for the general practitioner, as stated before, because he has neither the apparatus nor the experience to perform it. It would be advisable for the general practitioner to send such cases to a sanatorium. But I do believe that every institution for the treatment of tuberculosis should have an apparatus for the production of artificial pneumothorax ready for use. I do not agree with Dr. Pottenger or Dr. Browning in regard to the limitations of the operation. The publications which have appeared on the subject lately bear me out in this, and the latest work of Spengler and Brauer, which I have mentioned before, has shown remarkable results in cases where both sides have been affected, one, of course, not extensively. I must repeat that I am not talking about the treatment of the tuberculous infection itself with artificial pneumothorax; but I am talking about cases which have hemorrhages, and in which we have no choice in regard to the means of stopping them. I would rather produce an artificial pneumothorax, even if the case is not a proper one according to the indications for the operation, than allow a patient to die without trying to stop the hemorrhage by this means. In regard to the pressure which I am using during operation, I try to get a neutral pressure with the first inflation. We usually stop when the manometer shows 1-2 cm. positive pressure during inhalation, and during exhalation 1-2 cm. negative pressure. With the second or third inflation, I try to produce a positive pressure of 2-6 cm.

In regard to Dr. Murphy's case, which Dr. Browning mentions, it is of course impossible for me to explain the reason for the frequent hemorrhages after the operation. Might it not be possible that they came from the other side? I can only say that in all my cases, the artificial pneumothorax has stopped the hemorrhages promptly and absolutely. We keep the lung compressed for a year or longer, the time depending entirely upon the condition of the patient. I believe that we are undoubtedly justified in producing an artificial pneumothorax in profuse hemorrhage, even when only a small area of the lung is involved, if the hemorrhages are obstinate, and if the operation is not otherwise contraindicated.

### THE HYPODERMIC USE OF HEXAMETHYLENAMIN, (CH<sub>2</sub>)<sub>6</sub>N<sub>4</sub>.

By F. F. GUNDRUM, M. D., Sacramento.

The first work published concerning the excretion of hexamethylenamin, when used on laboratory animals and clinically, was that of Crowe,<sup>1</sup> in 1908. He was able to show in the laboratory that, following the administration of hexamethylenamin by mouth, the drug was excreted in the bile, pancreatic juice, saliva, milk, and urine of dogs. After the administration of 0.5 G by mouth to a rabbit, a positive test was obtained from the blood within fifteen minutes, although the maximum quantity,

judged by colorimetric methods, appeared about five to eight hours after ingestion. Clinically, he was able to prove its presence in the bile, urine, cerebro-spinal fluid, joint fluid, and a pleural effusion following the giving of 10 gr. to 75 gr. a day. He demonstrated a marked germicidal action in cases of gall-bladder fistula, the number of bacteria diminishing rapidly and ultimately disappearing completely so that no growth occurred on culture media.

Of special interest was a case of infection of the cerebro-spinal tract, purulent meningitis following an exploration, which cleared up under rather full doses. Following this work, many cases of infection of serous cavities were treated with hexamethylenamin, and a few reports have been published corroborating the work of Crowe. It was but a short step from the curative to the prophylactic exhibition of an agent whose effectiveness was apparently so definitely demonstrable. The custom was established on Dr. Cushing's service of giving from 30 to 60 grains by mouth to all cases with compound fractures affecting the meninges or central nervous system immediately upon admission to the hospital. On the general surgical service, Dr. Halsted's, 15 to 30 grains were given 1 to 2 hours before catheterization of a non-infected bladder whenever circumstances permitted.

While resident on Dr. R. T. Miller, Jr.'s, service at the St. Francis Hospital in Pittsburg, we followed the custom above mentioned, giving from 15 to 30 grains before catheterization and 30 to 60 gr. to cases of compound fracture of the skull, as soon as admitted to the hospital. One night, a case was brought in with a compound skull fracture, very dirty, but already vomiting and semi-comatose from increased intracranial pressure. The indication for hexamethylenamin seemed so urgent that the patient was given 30 grains hypodermatically at once, and the dose repeated upon his leaving the table after decompression and elevation of fragments. The ordinary tablets were merely boiled up in water and injected rather deeply into the thigh. I had considerable misgivings as to the amount of irritation which would be produced because it is comparatively easy to break hexamethylenamin down, liberating formaldehyde. No local irritation developed, and the patient recovered without a meningitis. A short time after that, an opportunity presented itself for using hypodermic injection upon an individual not mentally dulled, a case of acute retention, due to stricture of the urethra. He complained slightly of burning for fifteen or twenty minutes after the injection of 20 grains, but the following day all irritation had subsided.

The very slight irritation following the hypodermic use of hexamethylenamin has encouraged me to use it subcutaneously or intramuscularly whenever it is desirable to produce, if not an actively germicidal, an at least inhospitable medium for bacterial growth in any serous cavity, or the bile or urinary passages within a short space of time. This is particularly valuable if the patient is nauseated, comatose, or about to be operated upon when the

post-anesthetic vomiting too frequently empties the stomach of any drug and often prevents medication by mouth for several hours.

The frequent, early and generous exhibition of hexamethylenamin, particularly in cerebro-spinal cases is of exceeding value in the prevention of meningeal infection. It is not often able to affect to anything like so great an extent a case of meningitis, once established. The hypodermic use, too, is often of great value to the internist, as in the following recent case under my care. Mr. A. suffering from tabes dorsalis, with relaxation of vesical and rectal sphincters coming on during a severe gastric crisis. He had persistent dribbling, but without retention. As a natural consequence, so far as the bladder was concerned, he developed a rather severe cystitis with considerable mucus, an alkaline urine and many bacilli of the colon and proteus groups. He was given 10 grains of hexamethylenamin three times per day hypodermatically for a period of two weeks, in addition to the usual daily irrigation with warm boric acid solution. No local disturbances followed the injections and no objective irritation was noted. From these few cases and from others not reported here, it has seemed good practice at times when an early exhibition of hexamethylenamin is indicated, as a prophylactic measure, for example where catheterization or other genitourinary manipulation is necessary, and especially where meningeal, or possibly also joint infection is feared, to use the drug hypodermatically until such time as the administration by mouth can be taken up.

#### A REMARKABLE CASE OF CHICKEN-POX.

By EDWARD GRAY, M. D., Eldridge.

The case to be narrated was remarkable for the number and character of the complications and for the way in which it ended. We are so accustomed to thinking of varicella as a trivial ailment that it is a shock to find such a patient die.

Viola G., sixteen years of age, had been for several months an inmate of the Sonoma State Home (for the feeble minded) of California. She came to the Home because of epilepsy from which she had suffered since she was five years old, the seizures latterly being of a minor character. In addition to this she was choreic and had hypermetropic astigmatism. For this condition I recently prescribed corrective spectacles. The nervous twitching, when spoken to, was very apparent.

Her application-blank briefly records that she "had measles when five years old, caught cold, then typhoid fever and spells (epileptic) ever since." She distinctly improved after coming here and after a time was given some light work in the clothes-room.

Eight days after admission she had a series of epileptic seizures, the record standing simply "many"; for three months following, an average of 17 to 19 per month; then they decreased, for the last three months, to only two or three per month and these of light character. Her general health was therefore distinctly improved when on February 25, 1911, she was found to have varicella and was sent to our hospital. There it was noticed in a few hours' time that the patient was exceedingly nervous and restless, while the pocks were not numerous and itching hardly complained of. On this first night she was found jumping out of bed and wandering about the ward and next day she had to be restrained because of the excessive restlessness and nervousness. Succeeding this stormy period there was a time of petulance and then of apathy.

1. Crowe—*Johns Hopkins Hosp. Bull.*, Vol. XIX, No. 205, April, 1908.



Her eyelids twitched and she did not want to talk or to be questioned. On March 2nd she was found delirious and very restless while her temperature was 105.4° F. At 4:20 p. m. the temperature was 107.4° (all temperatures *arc per rectum*); while the respiration rate was 54. The temperature fell slowly through the night to 104° at 5:00 a. m. At this hour the pulse and respiration rate could not be taken and are marked "?".

The temperature was never again as low as 104°. At 8:45 next morning (March 3rd) the temperature was 105.4°, exactly the same as twenty-four hours previously. The heart sounds were now poor and endocarditis had been suspected nearly a day previously. The stage of excitement had now passed into stupor sometimes interrupted by delirium. She had a meningitis but as she was not under my care I cannot state whether the Trousseau *taches cérébrales* were present. During the following night the nurse reported that she could not get the pulse at any time. During the 3rd and 4th the temperature stood at various figures between 104.6° and 105.8°. On the morning of March 5th she was again restless at frequent intervals. At 11:15 the temperature was 106.3°; pulse ?; resp., 68; at noon was much weaker. At 1:00 p. m., temperature, 107° P. ?; resp., 54, and in five minutes she died.

The foregoing might be considered as remarkable enough but there is more yet of the history. A post-mortem examination was held which revealed a granular meningitis, a fresh pleurisy upon the right side, old vegetations upon the mitral and tricuspid valves with a relapse of endocarditis; and the left lung reduced to a small, formless mass through fibroid phthisis. The meningitis was probably tuberculous in character.

The kidneys appeared to be normal.

In such literature as is accessible to me I have found only one reference to meningitis as a complication of varicella. It is by Dr. W. F. Waugh (in the text-book of Alkaloidal Practice, p. 145) and reads: "The writer lost a child from meningitis suddenly developing during an attack of varicella." It was the meningitis which killed in the case here reported and not the slight endocarditis or the beginning pleurisy.

Here then in one individual were united these varied pathologic conditions; namely, epilepsy, chorea, hypertropic astigmatism, fibroid phthisis, pleurisy (with just beginning effusion) chronic endocarditis with vegetations and a beginning acute stage, varicella and acute granular meningitis. This is surely a remarkable combination if not quite a unique one.

The practical lesson to be learned from the history here narrated is to be on the watch for heart and meningeal complications in even seemingly simple cases of varicella.

#### REMOVAL OF THE TESTICLE—A CRITICISM BY DR. MARK EMERSON.

To the Editor of the State Journal: In the case of a congenital inguinal hernia in a child four years old, reported in the March number of the State Journal, page 110, by Thomas Garfield Dodds, M. D., the writer states that this case was complicated by an appendix and an undescended testicle in the hernial sac.

Allow me to quote a few lines of his article under operative technique:

"Undescended testicle found in sac just above appendix; impossible to draw testicle down into scrotum. Testicle about one-third size of left testicle. Removal of testicle. Typical Bassini operation completed on right side."

This is the second instance that I know of in which the testicle has been removed in the course of an operation for inguinal hernia, and it is on this particular point that I raise my objection.

None of the best surgical authorities recommend the removal of the undescended testicle.

As a last resort it may be placed within the abdomen and even that is seldom necessary, since the introduction of the Bevan operation for loosening up the Vas Deferens within the abdomen, partially dissecting the testicle from the cord until only the Vas is left attached to the epididymus.

These small testicles generally regain their normal size when liberated from the inguinal canal and placed in the normal position.

This individual cannot join the army or navy. It also has a bearing on life insurance as well as marriage.

Treves calls our attention to the strong physical effect on the individual.

The legal aspect of removal of a testicle in a child would prevent me from ever putting a case into public print.

The small size of this testicle was not due to atrophy or disease, it was simply undeveloped.

Its parenchyma normal and capable of secretion and this internal secretion certainly has something to do with the characteristics peculiar to the male.

The typical Bassini operation referred to, means to dislocate the cord to the upper part of the wound, bring it out above the coaptation of the internal oblique and conjoined tendon, to the shelving portion of Poupart's ligament. Owing to the length of cord necessary by this technique, it is the one operation that should not be done for undescended testicle.

If the testicle is removed because of the shortness of the cord how could one transplant that which does not exist?

How, then, could a "typical Bassini" operation be done in this case?

Besides the gain in length of the cord attained by the Bevan operation, the cord itself is capable of considerable distensibility.

If the cord is not disturbed but allowed to come out of the lowest part of the wound, considerable length would thereby be gained in the Vas Deferens.

It is possible that there are other complications in the case not mentioned in the article and I believe that the writer is broad-minded enough to know that I have no personal prejudice in writing this criticism.

Yours respectfully,

DR. MARK LEWIS EMERSON.

#### PROCEEDINGS OF THE SAN FRANCISCO COUNTY MEDICAL SOCIETY.

Regular Meeting Tuesday, May 9, 1911.

Program by the Alameda County Medical Association.

1—Rabies in California. W. A. Sawyer. Discussed by Drs. Wellman, Ophuls, Tait, Sawyer.

2—Salvarsan Treatment of Leprosy. Thos. J. Clark. Discussed by Drs. Oliver, Schmitt, Mead, Clark, Wellman.

3—Chronic Inflammations of the Prostate. Daniel Crosby. Discussed by Drs. Emerson and Krotoszyner.

4—Genesis of Incipient Tuberculosis. Edward Von Adelung. Discussed by Dr. Voorsanger. (This paper will appear in the Interstate Medical Journal.)

5—Auto Accidents from Detachable Rims. Mark Lewis Emerson.

Section on Surgery, Tuesday, May 16, 1911.

1—Presentation of a case. T. W. Huntington.

2—Presentation of a Case. H. C. McClenahan. Discussed by Dr. Hyman.

3—Demonstration of Application of Plaster Jacket for Curvature of Spine. James T. Watkins.

4—Present Method of Conservative Treatment of Tubercular Joints in Use at Children's Hospital. Geo. J. McChesney. Discussed by Drs. Smith, Crane, Hunkin, Sherman, McChesney.

Eye, Ear, Nose and Throat Section, Tuesday, May 23, 1911.

1—Report on Italian Eye Literature. E. C. Sewall.

2—Report on Italian Ear, Nose and Throat Literature. V. F. Luchetti.

3—Orthodontia in Relation to Otology, Rhinology and Laryngology. Roscoe Day, D. D. S.

### Rabies in California.

By W. A. SAWYER, M. D., Director of State Hygienic Laboratory, Berkeley.

For a year and a half there has been prevalent among dogs in certain parts of California, a disease frequently transmitted to other warm-blooded animals, including cattle and horses, and also to man. Rabies, or hydrophobia, is a striking example of those diseases which are perpetuated among certain animals and occasionally are transmitted in one way or another to man. Other familiar examples of such diseases are glanders in horses and mules, anthrax in cattle, and bubonic plague in rodents, all three of which diseases exist in California in animals, but seldom attack man. Rabies, while essentially a disease of dogs, is very apt to secure victims among valuable domestic animals and human beings, owing to the excitement and delirium which cause many of the infected dogs to travel about and to introduce infectious saliva with their teeth through the skins of animals and persons. While the control of anthrax and glanders offers difficult and complex problems, and while the safety of human beings from plague was accomplished in our state only through the expensive destruction of rats and their hiding places, rabies can be suppressed and even entirely eradicated in a definite circumscribed area by making it impossible, by muzzling, for dogs to bite, and by preventing dogs from entering infected regions until proved by a six months' quarantine to be free from the disease. Such methods have freed the island of Great Britain from the disease, and quarantine has kept the malady out of Australia.<sup>1</sup> These experiences, and many others in Europe and America, have shown that rabies may be suppressed with simple measures if they are thoroughly enforced, and that it is therefore a disease so decidedly preventable that it is a reproach to any community to have an outbreak occur and spread.

The Pacific Slope, after a long freedom from the disease, has at last been forced to add rabies to the list of diseases which demand suppression through concerted activity of the defenders of the public health. This disease, known for many centuries in Europe, was recognized in New England in 1768. In 1908 it was prevalent in the eastern half of the United States and occurred in rare instances somewhat further west.<sup>2</sup>

In a recent article Black and Powers describe a small outbreak of rabies among the dogs of Los Angeles in 1898.<sup>3</sup> Fortunately the disease was suppressed by a muzzling ordinance. In the same article are the reports of a fatal human case which was infected in 1899, from a dog in Pasadena, and of an outbreak in 1906 among the animals at the Soldiers' Home near Los Angeles. With these exceptions we have no authentic record of the existence of rabies in California previous to the summer of 1909, when the present epizootic first attracted attention in Los Angeles.

The disease may have been slowly carried to the state from the east by dogs and wild animals, such as coyotes and skunks, or it may easily have been introduced through the transportation over the railroad of an infected dog during the incubation period of the disease. It is only to be wondered at that the westward spread of the disease from the Atlantic to the Pacific seaboard required more than a century.

The spread of rabies through railroad transportation is well shown in the story of a dog whose head was sent from Imperial to the State Hygienic Laboratory, where examination proved the presence of rabies. This dog was the pet of a school teacher and accompanied her on a visit to Los Angeles, which is nearly two hundred miles from Imperial. A few weeks after returning, the dog suddenly became frenzied and killed fifteen chickens, but did not

bite any human beings or dogs. No other cases have occurred in Imperial, and it is highly probable that the dog had become infected during his unwise visit to a city in which rabies was prevalent. The traveling of dogs to and from infected districts ought certainly to be discouraged if not strictly prohibited by law.

The spread of the disease by wild animals is well illustrated by the first case reported in Oregon of the biting of a person by an animal suspected of rabies. In November, 1910, a child was bitten by a coyote showing symptoms suggesting rabies. The coyote was destroyed before its head could be secured for examination, and the child was given the Pasteur treatment without further evidence. A few weeks later a sheep and a pig which had been bitten by the same coyote developed rabies and their brains showed Negri bodies. I am indebted to Dr. Calvin S. White, State Health Officer of Oregon, for information regarding this interesting case, which shows that Oregon, as well as California, has been reached by the westward march of the disease.

The responsibility of the wild animals of California for the spread of rabies has not been clearly demonstrated. The tales of probable infections from skunks and from a mountain lion, were all, as far as I have been able to learn, unconfirmed by laboratory evidence. It is desirable that the heads of wild animals which display paralysis or ferocity unusual for their kind should be sent to the laboratory for examination in order that it may be definitely known whether these animals are playing a part in the perpetuation and spread of rabies.

The principal object in presenting this paper is to bring together for the use in the campaign against rabies a collection of reliable statistics with clear differentiation between fact and inference. The need for the dissemination of knowledge concerning rabies is indicated by the continued opposition to efficient measures for the eradication of the disease. Surprising as it may seem, the people most affected, namely the owners and lovers of dogs, through bitter opposition show a lack of appreciation of the fact that their pets are the chief sufferers from this terrible disease, as well as the means of its spread and transmission to horses, mules, cattle, pigs, sheep and human beings.

In order to combat successfully the usual opposition to the enforced muzzling of dogs, health officers should arm themselves with facts rather than opinions. To gain proof of the presence of the disease a laboratory examination of the suspected animal is imperative. A prompt and decisive laboratory examination becomes of greatest importance in those cases where human beings have been bitten, and where the patient is unwilling to spend the necessary money and time for treatment unless the need is clear. In such cases a positive report usually results in prompt and successful preventive treatment. If the report is negative, the patient is freed from the haunting fear that at any time in the ensuing months he may suddenly develop serious symptoms. Where dogs have been bitten by rabid animals, a positive laboratory report determines the advisability of having the dogs killed. It is unwise to keep infected animals about as they are apt to develop symptoms unexpectedly and spread the disease to others. The danger of keeping under observation and confinement horses or cattle which have been bitten by rabid dogs is not so great.

The routine examination of heads at the State Hygienic Laboratory consists of the careful removal of the brain, the making of smears from the hippocampus major, staining with Williams' modification of Mann's method,<sup>4</sup> and careful search of from one to twenty preparations for Negri bodies. If the results are negative, one or two experimental animals, usually rabbits, are inoculated subdurally with an emulsion of the brain. If diagnosis is urgent, a guinea pig is inoculated, since that animal shows a very short incubation period, frequently only ten days.

In drawing conclusions from the laboratory sta-



tistics presented in this paper it must be borne in mind that the great majority of rabid animals are not examined in the laboratory. The opinion has been published<sup>5</sup> that in Los Angeles not one case in ten has been reported to the Health Department. In that city 174 cases were reported between September, 1909, and April, 1911. During the same time fifty-nine positive examinations of heads from Los Angeles were made in the city laboratory. This means that approximately one-third of the reported cases received laboratory confirmation. From these statements it seems probable that the positive laboratory examinations represent less than one-twentieth of all the cases of rabies. In Stockton the proportion is more striking. We have the statement of Dr. Charles Keane, State Veterinarian, that one hundred cases have occurred in and near Stockton.<sup>6</sup> According to our records only three heads were sent to the State Hygienic Laboratory from Stockton. These instances show that the laboratory statistics represent only a small fraction of the total number of cases.

In the State Hygienic Laboratory between November 2, 1909, and April 1, 1911, a period of seventeen months, the heads of eighty-two animals were received. Two of the heads could not be examined owing to decomposition; thirty-six gave negative results. Of the remaining forty-four showing positive results, thirty-six showed Negri bodies and the other eight caused typical symptoms of rabies in rabbits. One of these eight heads could not be examined for Negri bodies owing to decomposition, but the brain material was used for inoculation after the activity of the putrefactive bacteria had been inhibited by emulsifying with glycerin and allowing the mixture to stand for over twenty-four hours. This substance when injected deeply in the neck caused typical symptoms of rabies to appear at the end of fourteen days. Of the forty-four positive cases, one was a cat and another a cow. The forty-two dogs examined were known to have bitten at least twelve human beings, the majority of whom received Pasteur treatment promptly. Eight of the dogs were stated to have bitten other dogs, one of them biting fifteen or twenty dogs and another biting two dogs and a mule.

The laboratory of the Los Angeles Health Department presents very interesting statistics of the present epizootic. Between September 14, 1909, and April 1, 1911, this laboratory examined 104 heads, 97 of which came from the city of Los Angeles. One of the heads could not be examined owing to putrefaction. The sixty-four heads giving positive results were divided among the various animals as follows: Fifty-nine dogs, three horses, one cow and one goat. The first five examinations in 1909 were made by inoculation of experimental animals. Since then the results have depended on microscopic search for Negri bodies alone. The horse and eleven of the dogs which proved to be rabid were reported to have bitten human beings.

The laboratory of the Health Department of Long Beach examined the heads of four dogs between July 1, 1910, and August 11, 1910, and found Negri bodies in each case. Two of these dogs had bitten human beings who received Pasteur treatment. All four were found in Long Beach.

In the pathological laboratory of Dr. Stanley P. Black in Los Angeles, between December 10, 1909, and April 1, 1911, the brains of fifty-seven animals and two human beings were examined. In both the human cases Negri bodies were found, and in one of them animal inoculation was performed and resulted in confirmation of the diagnosis of rabies. Of the fifty-seven examinations of animals' brains fifty-two revealed Negri bodies and were therefore positive, four were negative, and one was doubtful. In one of the cases animal inoculation was performed and resulted in rabies, confirming the positive diagnosis based on finding Negri bodies. Of the fifty-two animals' brains giving positive results, forty-seven were from dogs and five from cats. Thirty-seven of these rabid dogs and all five of the cats had bitten

human beings. The heads came from the following counties: Los Angeles, Orange, San Bernardino and Kings.

Summing up the evidence of the four laboratories we find that out of 247 examinations of the brains of animals for rabies, 164 gave positive results. One hundred and fifty-two of the positive cases were dogs and the remaining cases were distributed as follows: Six cats, three horses, two cows and one goat. At least sixty-eight human beings were bitten by the animals which were proved to be rabid by laboratory investigation. If our previous estimate that not more than one out of every twenty cases of rabies in animals is examined in the laboratory, is true for the whole state, these positive cases would indicate that there had occurred a total number of cases in California of over 3200.

The Director of the State Hygienic Laboratory requests that, if any pathologist making examinations for rabies has been overlooked during the compilation of these figures, he will kindly furnish his totals to the laboratory in order that the statistics compiled may be kept up to date.

The geographical distribution of the cases is graphically shown on the accompanying map. In addition to the dots and circles which indicate the locality from which the heads of rabid animals were sent to the laboratories, and the figures indicating the number of heads from each county, small crosses may be seen. These represent, as nearly as could be ascertained, the locations at which fatal human cases of rabies became infected. The first case antedates the present outbreak.

A summary of the human cases follows:

1. On March 10, 1899, in Pasadena, a man (H. M. S.) was bitten in the face by his dog. Five weeks after the infection symptoms of rabies appeared, and five days later the man died (April 30, 1899). Inoculation of rabbits with the brain tissues of the patient produced rabies.<sup>7</sup>

The remaining cases all belong to the present outbreak.

2. On December 12, 1909, a rancher (M. E. C.) aged 30, died of rabies at Holtville, Imperial County. This man was infected through the bite of a cat.

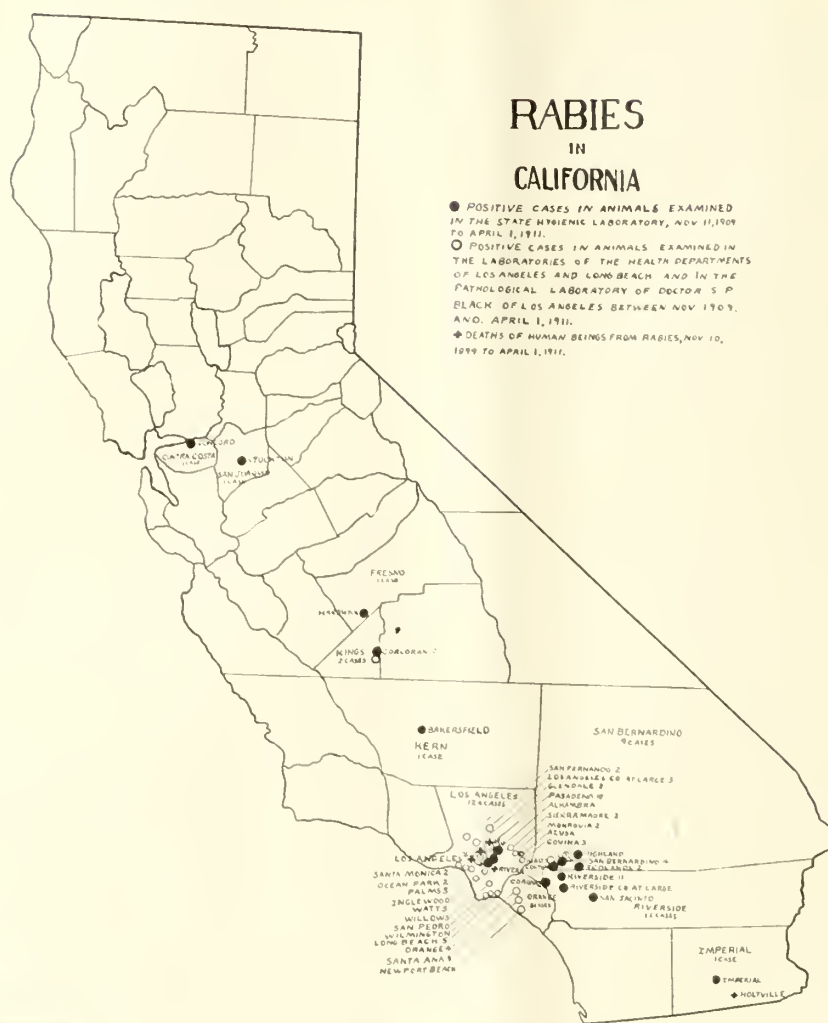
3. About December 17, 1909, in Los Angeles, a boy (J. S.) aged 10 years, was bitten in the leg by a stray dog. Nine weeks later symptoms appeared and death came three days afterward (February 21, 1910). Negri bodies were found in the brain of this patient.<sup>8</sup>

4. On May 2, 1910, a rancher (J. B.), aged 62, died of rabies at Rivera, Los Angeles County. He had been bitten in the face by his own dog.

5. On November 15, 1910, in Los Angeles, a girl (E. L.) of 6 years was bitten through the lip and on the nose by a dog. Intensive Pasteur treatment was instituted the next day, but symptoms of rabies appeared sixteen days after infection and death occurred two days later (December 2, 1910). Negri bodies were demonstrated in the child's brain.<sup>9</sup> A rabbit inoculated with some of the brain tissue showed the paralysis of rabies on the nineteenth day.

The last of these cases was a patient of Dr. David D. Thornton of Los Angeles, and with his consent I will present a short account derived from the full report which he sent me:

In the morning of November 15, 1910, a little girl of six years was sent by her mother to a neighboring grocery store. While she was in the store a small, wet and dirty dog entered and sprang upon her, biting through her upper lip and scratching her nose with his teeth. The dog then bounded through the door and ran away. Later in the day the same dog bit another child in the leg, about a mile from the store where Dr. Thornton's patient had been attacked. The dog was examined in the Los Angeles City Laboratory and Negri bodies were demonstrated. The next morning, thirty hours after the biting, the Pasteur treatment was instituted by Dr. Stanley P. Black and was continued systematically through November 30, the fifteenth day



of the treatment, when the little girl was noticed to be peevish and irritable. On the way home from the doctor's office her mother bought her some soda water, but the child complained that it tasted hot. On setting the glass down on the counter a sudden jerking of her hand overturned it and she became alarmed and cried violently. On reaching the street she became nauseated and vomited, and later she had another severe crying spell. As she seemed ill, she was put to bed. Food was repugnant and she ate no supper. During the night the child awakened at intervals and talked rapidly. At midnight she asked for a drink of water and the mother observed that her daughter had some difficulty in swallowing. The following morning the child arose as usual, and asked for water. Upon attempting to drink she experienced great pain in her throat and was unable to swallow. She became very irritable and extremely sensitive to noises. A window shade slipped from her mother's hand and went up with a sudden noise. This excited the child so that it could not be quieted for a long time. In the afternoon she rolled from side to side in bed and spoke rationally although she had been delirious at times during the day. The mere suggestion of drinking seemed to produce pain and there was fear of being touched or handled in any manner. The pupils were dilated. Chloral and bromides were given by rectum in an attempt to quiet the child. At about two o'clock in the morning she began having one convulsion after another. The pupils were dilated, the pulse was rapid, and signs of exhaustion were apparent. Chloroform inhalations gave only temporary relief. Any slight irritation as wiping the saliva from her lips would precipitate a convulsive

seizure. The convulsions grew weaker and weaker and further apart until death ended the suffering at six o'clock in the morning.

This case is a striking example of an extremely short incubation period, due in large part to the nearness of the wound in the face to the central nervous system. About two-thirds of the Pasteur treatment had been given and consequently the immunity was far from being established. Usually the incubation period is between forty and seventy days, which allows sufficient time for immunization.

In order to prevent the recurrence of these horrible cases of rabies in man until the disease shall have been eradicated among dogs, it is necessary that the Pasteur treatment should be given as promptly as possible wherever a patient has been bitten by an animal proved to have had rabies or strongly suspected of the disease. The importance of treatment is apparent to any one who considers that approximately fifteen per cent of all untreated persons who have been bitten by rabid animals develop the disease and die, while only 1.3 per cent of those treated die.<sup>10</sup> Almost half of the failures are in cases like one of those reported above, where the nearness of the wound to the central nervous system and the virulence of the infection so shortened the incubation period that there was insufficient time for the Pasteur treatment to establish an immunity before the onset of symptoms.

An example of very short incubation periods in animals has come recently to the attention of the State Hygienic Laboratory. A man living in one of the suburbs of Los Angeles reported to the laboratory that on November 24, 1910, his pet dog had



been bitten in the inner corner of the eye by a strange dog or coyote. Fourteen days later the dog became restless and the next day it was excessively playful and noisy. It refused to eat or drink, and it bit the man and his child on their hands. The dog died the following morning causing suspicion that it had been afflicted with rabies, and its head was sent to the State Hygienic Laboratory in Berkeley. Pending the arrival of the head, the Director of the Laboratory, influenced by the history of the case, telegraphed that he advised beginning treatment without delay. The Pasteur treatment was begun immediately. The dog's head was carefully examined but Negri bodies were not found. A rabbit was inoculated subdurally and in nine days it came down with typical symptoms and it died three days later. Negri bodies are said to be better developed in the slower cases, and in the rapidly developing case of this dog they were not discovered. In this case, the dog received a particularly virulent inoculation in a situation which permitted a quick spread of the infection up the nerves through the short distance between the eye and the brain. Usually the incubation period in inoculated rabbits is seventeen days or more. Dogs who have become rabid from bites usually have an incubation period of from fifteen to sixty days. Fortunately there was no delay in the treatment of the people bitten.

Those who have observed the symptoms of rabies in human beings, the anxiety and mental excitement, the painful spasms of the throat preventing swallowing, the convulsive seizures, and the final paralysis, are impressed with the horror of this agonizing disease. Inasmuch as the individual who has been bitten is seldom to blame, it seems only right that the community which has failed to suppress the disease among dogs should do everything within its power to enable the human victims to receive Pasteur treatment promptly and with moderate expense. I am of the opinion that there should be at least one place in California where a salaried officer of the state will administer the Pasteur treatment for a moderate set fee. This will not prevent the treatment being given by physicians to patients who desire to be treated at home and prefer to pay a higher fee, rather than to interrupt their work and travel to the Pasteur Institute of the State Hygienic Laboratory, wherever the State Board of Health might see fit to establish such an institution. An Institute is needed immediately for the administration of the free virus furnished by the United States Public Health and Marine-Hospital Service pending the beginning of the production of our own virus as soon as such a course will seem wise. The demand for Pasteur treatment is indicated by the fact that the Hygienic Laboratory of the United States Public Health and Marine-Hospital Service sent, previous to April 1, 1911, the virus for 141 Pasteur treatments to California. In addition to this virus the material for many treatments has been obtained by physicians of California from other sources.

Most of the cases given in California have been administered by Dr. Stanley P. Black and Dr. D. D. Nice of Los Angeles, who have kindly furnished me with brief reports of the extent of this work.

Dr. Nice has treated twenty cases of which three came from Arizona, where they had been bitten by skunks. No reports of rabid skunks in California have been received and it is to be regretted that the heads in the Arizona cases were not examined. Seventeen of Dr. Nice's cases came from Southern California; sixteen of these were bitten by dogs and the remaining case received the saliva of a rabid cow in a cut of the hand. Eleven of the dogs showed Negri bodies on examination and the remaining animals were not investigated in the laboratory. None of the twenty cases developed rabies. Treatment was begun from one to six days after the bite, except in one case when it was instituted eleven days after.

Dr. Black has given Pasteur treatment to 102 peo-

ple from Southern California. Most of these patients came from Los Angeles, San Bernardino and Orange counties, but one came from each of the following: Kings, Riverside and Ventura. Dogs were the source of infection in 93 of the cases, cats in 5, horses in 4. The diagnosis of rabies in the infecting animal depended on the discovery of Negri bodies in 77 cases (73 dogs, 3 cats, 1 horse), and in two additional cases on animal inoculation. One of the cases showing Negri bodies was confirmed by inoculation. The remaining 23 infecting animals (18 dogs, 2 cats, and 3 horses) were considered rabid owing to symptoms which they presented, or to the circumstances of the biting. The great majority of the people treated had been bitten, but in a few cases the virus had entered wounds otherwise inflicted. Three physicians took the treatment after receiving wounds while making post-mortem examinations of rabid animals. One of the 102 patients died of rabies long before the treatment could be completed, as has been already reported in this paper, and therefore this case cannot be looked upon as a failure of the method. Another patient showed some paralysis. With these two exceptions, no symptoms in any way referable to rabies developed during or after the treatment. The time elapsed between infection and the beginning of treatment averaged 5.7 days.

In Berkeley treatments have been given since November, 1909, by the writer to a helper in the State Hygienic Laboratory, who cut himself while opening the skull of a rabid dog, and also to a boy who was bitten by a rabid dog in Concord, California. This dog's brain showed Negri bodies. Neither case showed any symptoms.

A man who had been bitten while visiting in Missouri by a dog suspected of rabies, received treatment in San Francisco from Dr. Raymond Russ.

There are many persons who do not understand the best procedure to be followed when a person has been bitten by a dog suspected of rabies. The animal should be captured, if this can be safely done, and should be shut in a pen where he should be well cared for during a period of ten days. If the animal is alive and well at the end of that time, rabies may be excluded. If the dog dies, or if it is killed at the time of the biting, the head should be carefully removed by a physician or veterinarian, should be packed in ice in a large can or bucket, and should be sent by express to the State Hygienic Laboratory, Berkeley. The wounds inflicted on the person bitten should be promptly cauterized with nitric acid by the nearest physician. If there is little doubt of the presence of rabies in the dog, or if the wounds are about the face, there must be no delay in beginning Pasteur treatment. Otherwise it may be safe to wait twenty-four to forty-eight hours for a telegraphic report of the microscopic examination of the laboratory. All dogs and cats bitten by rabid dogs should be killed, for they would be apt to spread the disease should they develop it. As soon as it is known that the disease is present in the community, the health authorities should be notified and support should be given to the establishment and enforcement of ordinances compelling the destruction of ownerless dogs and the muzzling of all dogs until six months after the disease will have disappeared. If a neighboring community contains rabies and is not properly handling the situation, steps should be taken to prevent dogs from entering from the vicinity where rabies prevails.

The proper application of the precautions which have been outlined will diminish rabies to a minimum, and possibly entirely free our state from the disease. This would prevent a great deal of suffering among dogs and cattle, and would annually keep a few human beings from the tortures of a horrible death.

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- 3 Black, S. P., and Powers, L. M., *Cal. State Jour. of Medicine*, Nov., 1910, Vol. VIII, pp. 369-371.
- 4 Stimson, A. M., *Bull. 65, Hyg. Lab., U. S. Pub. Health & Mar. Hosp. Serv. Wash.*, p. 64.
- 5 Black, S. P., and Powers, L. M., *Cal. State Jour. of Medicine*, Nov., 1910, Vol. VIII, p. 371.
- 6 Discussion: *Cal. State Jour. of Med.*, Nov., 1910, Vol. VIII, p. 371.
- 7 Radebaugh, J. M., quoted by Black and Powers, *Cal. State Jour. of Med.*, Nov., 1910, Vol. VIII, p. 370.
- 8 Colburn, J. R., quoted by Black and Powers, *Cal. State Jour. of Med.*, Nov., 1910, Vol. VIII, p. 371.
- 9 Black, S. P., *Southern California Practitioner*, Feb., 1911, Vol. XXVI, p. 78.
- 10 Stimson, A. M., *Bull. No. 65, Hyg. Lab., U. S. Pub. Health & Mar. Hosp. Serv. Wash.*, p. 61.

#### Discussion.

Dr. Wm. Ophuls: I have listened with interest to Dr. Sawyer's splendid presentation of the subject. I examined the cerebellum of a girl who was killed by a mountain lion in the Santa Clara Valley; the lion was suspected to have had rabies, but in spite of careful examination we were unable to discover Negri bodies in the brain. I have not known of any cases which occurred in San Francisco. At the hospital a few months ago we had a dog which behaved as if he had rabies, but it turned out that our fears were without foundation of fact. Certainly sooner or later the disease is going to come to San Francisco, and it would be better to take time by the forelock and prepare an ordinance and enforce it in case of need.

Dr. W. A. Sawyer: The geographical distribution of the disease is interesting. Around Los Angeles, where the population is crowded and where there are many dogs, the disease is found prevalent over a fairly large area. Around San Francisco Bay, where the disease has not yet broken out, there is a distinct need for the authorities to prevent the disease from slowly working its way into that densely populated region. Over a year ago the disease was in Stockton and a single case has been found as near as Concord. If we can only keep rabies from getting into the Bay region we will be doing a distinct service to that community.

#### Automobile Accidents from Detachable Rims.

By M. L. EMERSON, M. D., Oakland.

All these accidents occurred during the year 1910-1911. Dr. Larkey wishes to refer to the following experience:

While coming down the Piedmont hill, in his automobile, he heard a hissing sound evidently coming from one of his rear tires. On reaching the bottom of the hill he stopped and got out to inspect the tire. When within two feet of the wheel a blow-out occurred, followed by a loud report, knocking off the detachable rim which flew into the air about twenty feet high and landed about one hundred feet from the car.

Dr. Wm. Channel wishes to report the following case: While waiting to have his gasoline tank filled in one of the local garages, his attention was called to a mechanic, who was pumping up a deflated tire with a large double lever hand pump. A hissing sound attracted the doctor's attention, also the mechanic's, who stooped down beside the wheel trying to detect the air leak, when suddenly the inner tube blew out, knocking off the detachable rim, striking the mechanic sideways on the hip, shoulder and left leg, knocking him down and over the pump he was using. The leg injury consisted of a severe bruise over the tibia.

I wish to report the following cases: Dr. I., a local dentist, consulted me concerning a bruise over his left tibia. He stated that two days ago he had inflated a tire on his automobile, using the ordinary single piston hand pump. After completing the same and while placing the screw cap on the valve, the inner tube blew out, knocking off the detachable rim with great force, striking him on the leg and shoulder, knocking him against the side of the garage a few feet away, from whence he fell to the floor, dazed but not unconscious. The doctor stated that at the time of the accident he had on a very

heavy automobile coat, which must have saved him from a more severe injury, as the force of the blow was tremendous.

Mr. O., local tire dealer, consulted me regarding an injury to his forehead, stating that after inflating a 34 by 4 tire with eighty-five pounds pressure, and while adjusting the cap on the air valve, the inner tube blew out simultaneously with the loosening of the detachable rim. The force of the blow from the air, he said, was like being hit on the side of the head with a beer mallet. The detachable rim struck him on the forehead, shoulder and right knee. He was in a squatting position and on attempting to rise and sustain his balance, he took two or three steps backward, finally falling on his back between the middle car tracks, the tire going on over his head to the other side of the street. He was temporarily dazed by the blow but not by the fall. I found a huge welt on his forehead with a distinct marking of the rim where it had made its impression on the skin. The skin was not lacerated. I could find no fracture. A year ago the same patient had a similar accident from a quick detachable rim, hitting him over the left eyebrow, causing a black and blue swelling which remained ten days. There was no scar with either injury.

On October 21, 1910, Mr. H. J. T., an automobile mechanic, was admitted to the surgical department of the Merritt Hospital. He was unconscious and comatose. Four weeks previous, after inflating an automobile tire with compressed air and while adjusting the valve cap, the detachable rim blew off the tire, accompanied by a blow-out of the inner tube. The patient was kneeling on both knees with his head bent forward, about twelve inches from the wheel, and got the full blow of the rim flat across his forehead. He was knocked unconscious, falling forward alongside of the wheel. In this condition he was removed to a nearby sanatorium, where a compound fracture of the frontal bone was discovered, with concussion of the brain. A central piece of protruding bone was removed, some other depressed fragments elevated and drainage established. In a few days consciousness returned, and in three weeks the patient left the hospital, not well, but able to walk around. A few days following severe headaches supervened and a drowsy and later a comatose condition followed. In this condition I first saw him. Comatose but able to be awakened occasionally to take liquid nourishment with considerable effort at swallowing. Pulse 78, temperature 104°, respiration 12. Dilated pupils, choked discs. Diagnosis, compression of brain, meningitis. Operation. I made a large frontal flap, turning the same down over face, which revealed a multiple fracture of the entire frontal bone, some fragments depressed and bathed in pus. A number of these were removed, other elevated and the surface of the dura cleansed. I could determine no abscess and but little pus exuded from a small opening of the dura. The patient died nine days after entering the hospital, never regaining consciousness or showing any improvement. Dr. LeRoy Briggs, autopsy surgeon, reported diffuse suppurative meningitis. Staphylococci; no abscess.

In every instance the accident occurred by a defect in the locking device for holding together the two ends of the detachable rims. Either the tie screw was worn or had not properly engaged or was knocked loose by banging on the rim with a heavy hammer.

#### "Demonstration of Application of Plaster Jacket for Curvature of Spine."

By JAS. T. WATKINS, M. D., San Francisco.

Before proceeding with our demonstration I want to impress upon you that it represents but a single feature in the scheme of treatment for spinal curvature. The rest of the broad subject of treatment will not be discussed by me. Neither the importance of prolonged recumbency on the curved gas-



pipe frame nor the relative value of different exercises, nor the use of the Lange scoliosis press, nor Lange's pelvic and shoulder girdle distortions apparatus, nor a number of other matters can properly be considered here and now. All that I aim to do is to demonstrate to you the priceless value of the Wullstein apparatus as an aid in the attempt to solve the mechanical problems presented by a distorted spine. Its uses, abuses and limitations and whatever criticism you may have to make of my introduction would be proper subjects for subsequent discussion.

I think I will not be more than four minutes recapitulating in outline the unsatisfactory little that we know about scoliosis.

First: Causation. No theory has thus far been formulated which can be made to account for even a majority of the cases we see.

Second: Mechanics. Broadly speaking, it may be said that spines obey the laws governing flexible rods, undergoing the same changes of form that these do when they are subjected to identical stresses. There is reason to believe that we have not yet recognized and recorded all of the stresses to which spines *in vivo* are subjected. Also when a portion of the spine becomes fixed it ceases to respond to external influences as do the mobile portions. It ceases to be a flexible rod.

Third: Treatment. Lateral curvature is a compound distortion, the result of several complex movements.

The lack of success which has attended efforts to forcibly correct scoliotic distortions in the past must be attributed, at least in part, to failure to recognize and control all the factors; that is, all the twists and bends, whose sum is the compound distortion which we term spinal curvature. We have to be prepared to correct, both in the thoracic column or in the lumbar column or at this junction, side bendings, forward and backward bowings, right and left twists and various combinations of all of them.

The attempt has to be made to straighten a bent and twisted rod, the middle segment of which is, in the cases which call for forcible correction, oftenest fixed and inflexible and presents the maximum distortion. This middle rigid segment of the spine is separated by reversibly distorted or perhaps hyperflexible segments, from the two ends—that is, the head and pelvis, where alone the spine may be grasped. For the rest, the spine may only be approached from one side, that is, behind, and finally the attempt to exert a thrust upon the apex of the distorted segment must be made indirectly through the ribs which are movable upon the spine itself.

Turning to the Wullstein machine, if for purposes of demonstration we assume that we have to do with the usual S-shaped type of scoliosis, we find three means of proceeding against the exaggerated forward bend in the thoracic segment: (1) simple traction; (2) hyper-extension over head; (3) thrust of the pressure pad on apex of curve. The exaggerated backward lumbar distortion is flattened (1) by seating the patient; (2) by simple traction; (3) by sliding the seat backward against the fixation obtained with the pressure pad.

The torsion and comparatively slight side bending in the dorsal column is attacked by (1) pure traction; (2) the shoulder straps; (3) the thrust of the pressure pad.

The torsion and marked side bending in the lumbar column is attacked (1) by the rotation of the seat on a longitudinal axis; (2) by the tilting down of one side of the pelvis; (3) pure traction.

A counter pressure pad may be placed over the prominent ribs in front.

#### Treatment of Bone Tuberculosis at the Children's Hospital.

By GEORGE J. MCCHESENEY, M. D., San Francisco.

The purpose of this paper is to give a brief account of the present technic of treatment of cases

of spinal, hip, knee and smaller joint tuberculosis at the Children's Hospital.

Of course I can only speak authoritatively for the work done on Dr. Sherman's service, but the other half year's under Drs. Hunkin and Crane does not differ essentially, as far as my observation goes, and what differences in treatment there are, they will doubtless tell you.

I will not try to support my belief in our present mode of treatment by complicated statistics. I will say, however, that nowadays our cases (except those far advanced on admission) invariably run a mild course and that no radical life saving operations are necessary, whereas a few years ago we always had under our care some desperately ill cases, which would often necessitate the removal of a joint, or a limb, to save life.

Excessive temperatures in the "Little Jim" ward nowadays are due to other causes than the tubercle bacillus, and night cries are very rare. The principal reasons for this improvement are two: first, improved methods of resting and immobilizing affected joints; second, ultra conservatism in the use of the knife. I shall amplify these two reasons in discussing the treatment of individual joints.

First: Tuberculosis of the Vertebrae. As we all know, the infection usually attacks the anterior or ventral part of the intervertebral discs and bodies of the vertebrae, and the body weight then crushes the spinal column anteriorly, and forms a knuckle of bone, or kyphos, posteriorly. This is combated by recumbency in hyperextension on a curved gas-pipe frame. This position removes the body weight and thus releases from pressure the diseased parts of the vertebrae. This we are now supplementing by the wearing of a plaster of Paris jacket with Calot's method of making openings in the jacket over the kyphos and the insertion of felt pads every two or four weeks, making a gradually increasing direct pressure upon the kyphos up to the point of toleration. This aids the hyperextending tendency of the curved stretcher and affords much more immobilization, lessening considerably even the excursion of the vertebrae caused by respiration, and the traumatism consequent upon it. It is yet too soon to judge from our results but Goldthwait in his "Diseases of Bones and Joints" concerning the Calot treatment, says, "By this method when final consolidation takes place, although new bone does not replace that destroyed, the bodies fuse, the spinous processes are crowded together, instead of being bent apart, and while above and below the seat of the old kyphos, there may be found slight concave compensatory curves, the kyphos as such is not evident."

This jacket treatment is continued of course after the child is allowed up. So much for a general outline of the treatment which in some form extends over a period of from two to six years, recumbency occupying roughly a third of the time.

The cold abscess is the principal complication, and is let absolutely alone, except retropharyngeal and retromedastinal abscesses which are very rare.

In this, I may be more enthusiastic than the other members of the orthopedic staff, but I am convinced that the chances of secondarily infecting the cold abscess (a serious and sometimes eventually fatal accident) are greatly increased by incising or even aspirating it. It is interesting to note how large an abscess may become and not interfere with the general health of the patient, but once in awhile it causes discomfort by pressure and then only should aspiration be resorted to. Usually it breaks through the skin, and then Nature's ragged tortuous opening seems to me admirably adapted to combat the entrance of secondary infection, provided always that we do not meddle with her defenses in trying to hurry the flow of pus by manual pressure over the abscess. This is a mistake, for, when the pressure of the hand is released, the abscess wall expands, air is sucked in, and with it air-borne infec-

tious germs, which find an ideal culture medium, and no resistance in the surrounding tissues.

Our technic, when the abscess ruptures, is to allow it to flow out absolutely undisturbed into sterile gauze dressings, which are changed every three to eight days, depending upon the tendency of the skin to excoriate, but trying always to make these necessary exposures to the air and other modes of contamination as infrequent as possible. When following this "let alone" policy, it has invariably been noted, that the volume of discharge quickly dwindles to a minimum, no constitutional symptoms are noticed, and the abscess ceases to be a cause of trouble, although a minute discharge may persist for months.

A striking example of the advantages of this mode of treatment was presented in the case of a cold, painless abscess the size of half an orange in the postero-lateral aspect of the knee joint, in a case of knee tuberculosis. The skin was thin and reddened and rupture was evidently not far off. I sterilized the skin, applied a voluminous sterile dressing and immobilized the knee in a plaster splint. Six weeks later I changed the splint, found dried discharge in the gauze dressing, a dry crust over the mouth of the sinus, and no abscess. The boy had been perfectly happy the whole time and when it ruptured we could not determine. Even odor was lacking, there being no secondary infection, a mild type of which may cause pronounced odor, and is always due to too much handling. When an infection severe enough to cause constitutional symptoms occurs, the odor may be slight or absent, but the amount of discharge is the reverse.

Aspiration is justified occasionally as when there is discomfort or pain from pressure of pus. I have never seen its absorption cause constitutional symptoms. On the other hand, the risk of infection, terror and pain to the child, plugging of the needle with slough, are each good reasons for refraining from a procedure which benefits so little.

Second: Tuberculosis of the Hip. Here resting and immobilizing the joint are of supreme importance. Rest or cessation of weight-bearing is easily obtained by crutches and high shoe on the well side, but immobilization sufficient to control joint friction and irritation, can only be obtained by the careful application of a snug fitting plaster of Paris spica. After years of experimenting with various kinds, we have found that it must extend from a little above the ankle to the ensiform cartilage, with the limb in a position of hyper-extension or full extension and 15 to 20 degrees of abduction.

This position, first adopted as a routine procedure as far as I know, by Dr. Hunkin, stretches and places at a mechanical disadvantage the iliopsoas and adductor muscle groups which are the chief offenders in the production of the muscle spasm, and subsequently of the classical deformed position of untreated hip disease, and also it firmly places the head of the femur against the Y ligament, and front of the capsule and acetabulum, and assists greatly in producing immobilization, which is all a spica tries to do.

All cases of hip disease, new and old, are put at once into this position in plaster of paris spicas. Usually an anesthetic is required to relax the muscular spasm, before the desired position can be obtained, but even in the worst cases only two or three nights of discomfort follow, and night cries are seldom heard. Since adopting this method of treatment, abscesses have not developed in the fresh cases, and invariably in advanced cases the progress of the disease has been arrested. Abscesses here have the same treatment as the spinal abscess, i. e., complete conservatism. If the abscess ruptures, well and good, it finds an aseptic skin and sterile gauze dressing waiting for it which, to minimize the chances of secondary infection, will be changed as infrequently as possible.

I claim again, that in a fairly large series of hip joint tuberculosis in the last year, comprising about 34 in hospital and private practice with Dr. Sher-

man, every case has had an uneventful course, and gives promise of a relatively quick recovery with a minimum of damage to the affected joint, and a fair range of motion. This, however, does not include the cases presenting themselves for treatment, where the disease has advanced so far that the best result obtainable is a complete bony ankylosis. A recovery with a hip joint fixed permanently in the position I have described of 15 to 20 degrees abduction, and full extension, is not the most desirable, principally because the sitting position is impossible, except on the edge of a chair, with the affected limb awkwardly outstretched. The gait also is not as good as when there is 20 to 25 degrees of flexion of the limb with an abduction of the same amount. Consequently, limbs, where the active process has subsided, and little or no motion is present, are placed in this position, instead of the one I have previously described for cases where joint irritation is present.

In knee joint tuberculosis, the same general plan obtains—first rest, by the cessation of weight bearing, usually by means of the Thomas walking brace. Second, immobilization by a plaster splint. This can only be done with the tibia fully extended on the femur, i. e., forming a straight line with it. Usually some flexion deformity has already occurred, and this can be overcome, either by gradually wedging the posterior two-thirds of a splint apart, on the anterior one-third as a hinge at the knee, taking several sittings to do it, or doing it all at once, by the Whitman method, which is to extend the femur on the tibia, the anesthetized patient lying prone. Of the two methods, I prefer the former, as the traumatism to the joint is less and an anesthetic is avoided. In either case, immobilization is not perfect until the more powerful flexor muscles are put at a mechanical disadvantage by separating their origins and insertions, as far as possible, as in hip disease. The necessity for haste, however, is not as great, as usually the first splint controls the pain. Abscesses are treated here in the same way as are those of hip and spine.

Not many cases of smaller joint tuberculosis are treated in the hospital, being usually referred to out patient clinics, but the same general rules laid down above are followed here and with as much success.

Sever of Boston in a recent study of ankle joint and tarsal tuberculosis in comparing 100 operative versus 88 non-operative cases, claims less time of treatment and less resulting deformity in the non-operative cases.

There are cases, however, where conservatism must be laid aside and the knife resorted to immediately. I refer to tubercular abscesses in the bone near a joint with the joint not yet involved. Such cases are rare, but do occur, and can be diagnosed only by aid of the X-ray. Here early evacuation of the abscess and curetting the cavity saves the joint. I have assisted in two such operations recently, in cases involving the lower end of the femur in children, and threatening the knee joint, and we are always on the lookout for a similar affection at the other end of the bone to perform the operation which Dr. Huntington has recently brought into prominence again. If, however, we consider the synovial membrane of the joint to be in the least implicated by extension of the process, operation is contraindicated.

Bismuth paste we now use only in single or multiple old chronic sinuses where the bone has healed and the discharge is at a minimum. We find it contraindicated, where the process is acute or the discharge profuse, although there have been a few cases where it has seemed to control a profuse discharge to a marked extent.

Other adjuvants in use are the Bier congestion and the tuberculin injections, but we do not consider their exact value as yet determined.

The general treatment for tuberculosis is of course most important, and we endorse the mandate of the municipal dispensary clinicians to "keep your win-



dows and bowels open." We have the windows open all the time, and consequently less work for the tonsil and adenoid operations.

It is our hope some day to take all these tubercular children to a hospital annex somewhere along the ocean beach, where they can be out of doors all day and breathe only the sterile air off the ocean. This has met with great success at Berck-Sur-Mer, in France and at the Sea Breeze Hospital on Long Island.

In conclusion, I wish to be plainly understood that this conservative plan of treatment applies only to children. Past the age of puberty the problem is quite different. But in all cases the battle is one of years, not months, the parents have to be slowly coaxed into agreeing with our patient waiting policy and for the orthopedist, at least, the "pay-as-you-enter" office is a dream of the future.

#### Discussion.

Dr. C. C. Crane: It seems to me that Dr. McChesney has treated the subject carefully, tersely and fairly. It is gratifying to know that the views of Drs. McChesney and Sherman, particularly in regard to the treatment of tuberculosis of the spine and hip, so closely coincide with the principles enunciated by Dr. Hunkin from whom I have received much and very valuable instruction. In the consideration of so important a subject such unanimity is most salutary. With regard to the prognosis in scoliosis it seems pertinent to lay stress upon a point which has not been too much dwelt upon. During the preliminary treatment of scoliosis when the stiffened areas of the spine are being rendered flexible and the correcting performances are being pursued the role played by the patient is mainly a passive one. Eventually, however, when the treatment by active exercises is begun, the patient assumes a more important role and it is at this time that the earnest and enthusiastic co-operation of the patient must be obtained and maintained if the happiest results are to be expected.

Dr. S. J. Hunkin: Dr. McChesney has covered the ground so very thoroughly that I feel there is but little left to be added regarding the part protection plays in the treatment of tubercular bone diseases. In hip disease I am glad to learn that Dr. McChesney is following the hyper-extension position for fixation. I have employed it for many years in the hip joint, and believe also I was the first one who insisted that it be done in the spinal cases. From my standpoint it is above any other plan offered. I look upon tuberculosis in the lumbar region as in the best possible position for cure without a deformity. I have thought that cases perhaps get well quicker up in the cervical region, but it is more serious in that location. In my opinion the hardest place is in the upper dorsal region. This can readily be understood, for it is easy to throw the weight backwards where the normal curve is concave backwards, and hard where the normal curve is convex backwards, and as the more extreme posterior convexity is in the mid-upper dorsal, here the deformity increases most rapidly and is harder to control. I believe that it is as important to give rest to the spine in tuberculous conditions as it is in the hip joint, but I do not keep my patients so long in bed as Dr. McChesney's paper would lead one to suppose he does. If the child has the proper curve and we can easily maintain the superincumbent weight of the child posterior to its focus of disease, and there is no spasm, it is not put to bed at all but wears a jacket from the start.

Dr. Harry M. Sherman: As the hour is very late I am going to say but a very few words. Really I am most interested in speaking about the operative as against the non-operative method of treating these conditions. About twenty-five or twenty-six years ago I commenced working in San Francisco and began almost at once to treat bone and joint tuberculosis. I had been taught in Sayre's clinic mechanotherapy as it was then understood. It

seemed to me wrong to go on treating these cases by splints, braces, etc., when possibly operative procedure might cut everything short and save time and limb and life, often, however, at the sacrifice of a joint. I did a long string of excisions of all the joints,—of the hip, over one hundred. There were some most satisfactory results as regards life and limb but with loss of the joint; some of the patients were able to walk and to work, and one, who had had a hip excision, became a stevedore. We did not then know all we do now about asepsis and our antiseptic and aseptic technic was often faulty and some of the results were deplorable, joint and limb and life all being lost. Gradually I came back to the more conservative line of treatment and the more careful use of the traction splint which Taylor invented and Sayre popularized and which was perfected by being simplified by Judson as the New York Polyclinic hip joint splint. This, with a thoracic band added, is probably the best of the long traction splints, giving both immobilization and traction to control motion and intra articular pressure. What is true of hips in this story, in respect to operative as against non-operative methods is true also of knees and to a certain extent of ankles. The operative possibilities fascinated until the mischances made me study conservative methods more carefully. Then Lorenz came and told us about the plaster of Paris spica for hip joint tuberculosis. Before the visit of Lorenz I had not infrequently put a plaster of Paris spica on a hip patient but only as a temporary expedient while the instrument maker made a steel instrument, but after the visit I began personally to use more plaster of Paris instead of the traction splint, substituting immobilization alone for immobilization and traction. Finally Dr. McChesney came into the office, and gradually I turned over to him this phase of the work, particularly so far as the dressings were concerned, and then he began to go on beyond what I had taught him and took to the plan of Dr. Hunkin, which includes hyper-extension and abduction. So far as this particular position is concerned I have this to say: The final test of its value will be the amount of bone destruction which occurs. If there is less bone destruction in this position, it is the position in which the limb must be put; if there is more bone destruction, it is not the position of choice. In hyperextension and abduction the femoral head is thrown forward against the anterior part of the capsule, pressing against an unstable point in contrast to the stable floor of the acetabulum. This does not seem to count for complete immobilization. Of course there is no traction at all. Perhaps it may be interesting to note that this is doing with tuberculous joints just what Robert Jones is doing in the case of fractures near to joints, putting them into a position quite opposite to that they would finally assume if left alone, and the philosophy of it for each may lie in this particular idea.

The other day there came into my office a man upon whom I had operated 17 years ago; the hospital record showed that I had cut down upon the trochanter and trephined it and had cut out the infected and softened cancellous tissue of the trochanter and neck but that I had failed to relieve or benefit the patient because the joint synovia was affected and it had to go on to excision. Excision was done first on one hip and then on the other. It was on this patient 17 years ago that I was working along these lines that Dr. Huntington is now advocating and this must have been one of the earliest cases of that character that I did. Now I have gone all the way around the circle, and how far I may go on a second lap I cannot tell.

Dr. George J. McChesney: If a child with spinal disease comes for treatment with a history of being more or less restless, does not sleep well and is nervous and irritable, we find that getting up in the jacket right away is not the best plan, but the child should be put upon the stretcher for prolonged rest. When the child gets fat, when it commences to be

lively and active, and the mother complains of the difficulty of keeping it on the stretcher, then we allow the child to be up in a jacket. I agree with Dr. Hunkin that the lumbar spine is much easier to treat than the dorsal. Dr. Sherman has said rightly that we have not carried these cases along far enough as yet. The final results will have to show themselves 15—20 years hence. In reference to the position of the head of the femur against the ligament and front of the acetabulum versus a possible more stable position in the center of the acetabulum, I think the more important factor is the overstretching of the flexor and adductor muscles and when they are out of commission the head of the femur takes care of itself.

## SOCIETY REPORTS

### ALAMEDA COUNTY.

The regular meeting of the Alameda County Medical Association was held in the rooms of the association, 127 Telegraph avenue, Tuesday, May 16, 1911, at 8:30 p. m.

Vice-President W. A. Clark in the chair.

The program was given by the San Francisco Medical Society.

- I. Appendix Dyspepsia—Dr. Wm. Fitch Cheney.
- II. The Surgical Treatment of Uterine Prolapse—Dr. Harold Brunn.

The papers were exceedingly interesting and brought out a full and equally interesting discussion participated in by Drs. Emerson, Von Adelung, Hamlin, Crosby, Buteau, Adams, Makinson, Percy and Ewer.

PAULINE S. NUSBAUMER, Secretary.

### CALIFORNIA ACADEMY OF MEDICINE.

The California Academy of Medicine held a regular meeting on Tuesday evening, May 22, 1911. The following scientific program was given:

1. A Preliminary Note on the Relation Between Rat and Human Leprosy, Dr. L. S. Schmitt. Discussed by Drs. McCoy, Canney, Cooper, Schmitt.
2. Charcot Joints, Dr. Leo Eloesser. Discussed by Drs. Rusk, Ophuls and Eloesser.
3. Demonstration of X-Ray Plates, Dr. George L. Painter.

Refreshments were served at the end of the program.

### SAN DIEGO COUNTY.

The Physicians' Club of San Diego held its annual meeting on May 4th, in its rooms in the Timken Building. Substantial progress in membership and in acquisitions to the library were reported. The County Society now holds its meetings in the club rooms, and the two organizations are closely affiliated, membership in the County Society being the first requisite for membership in the club.

Officers for the ensuing year were elected as follows: President, W. A. Winship; vice-president, J. E. Jennison; secretary and treasurer, B. J. O'Neill; directors, V. G. Clark, I. D. Webster, F. Baker, R. Lorini and H. P. Newman.

On Thursday evening, May 18, the San Diego County Society and the Physicians' Club of San Diego entertained the medical officers of the Pacific fleet and of the troops now stationed here at an informal smoker at the University Club.

The guests were welcomed in short speeches by Dr. I. D. Webster for the Medical Society and Dr. F. R. Burnham for the Physicians' Club. Dr. Norton, fleet surgeon, responded on behalf of the visitors. Dr. T. L. Magee gave a short history of the founding and early days of the County Society. Various other short talks were given, after which the company adjourned to the dining room.

Mayor Wadburn, of San Diego, has recently appointed the following physicians, all members of the San Diego County Medical Society, to fill vacancies on the City Board of Health: Dr. H. C. Loose, Dr. H. M. Wegeforth and Dr. B. J. O'Neill.

B. J. O'NEILL, M. D., Secretary.

## BOOK REVIEWS

**The Practical Medicine Series, Vol. II, General Surgery.** Edited by John B. Murphy. Series 1911. Chicago, The Year Book Publishers. Linen. Price \$2.00.

An excellent compend of the year's progress in surgery. It may be heartily recommended to the general practitioner as a good succinct exposition of the present status of the surgical questions of the day, and to the surgeon as a ready manual of reference to the most important recent literature—one that will often save him a search among bulkier literary indices. The remarks and the expressions of personal opinion that the editor, J. B. Murphy, has appended to many of the articles, greatly enhance the value of the book. L. E.

**Principles of Therapeutics.** By A. Manquat. Translated by M. Simbad Gabriel, M. D. Published by D. Appleton & Co., New York, 1910.

The author lays down principles to guide the young physician in the right direction. His ideals are the highest; he pleads at length for scientific therapeutics and decries the use of therapeutic measures which are based on imaginative theories. "When scientific therapeutics does not know . . . it says so; when it affirms, it proves; when it ventures a hypothesis, it makes reservations." A classification of therapeutic measures, based upon the objects to be attained, is discussed in one chapter. The groups he suggests are (1) therapeutics of disease, which includes specifics, anti-infectious (non-specific) medicines, antiseptics, antiparasitics, antidotes and eliminators; (2) organic and functional therapeutics; (3) symptomatic therapeutics; (4) reparative therapeutics. He makes the distinction between utilizable action and toxic action of drugs. That this is a practical division for the study of therapeutic agents is readily shown, as is also the difficulty in determining the influence such toxic and utilizable doses bear on the morbid organism.

In chapters devoted to "doses and medical opportunity," Manquat argues for the use of the smallest efficacious dose. "Except specific medicines, which require fairly large doses, there is advantage in the majority of cases, in prescribing doses considerably smaller than those usually recommended." His illustrations of the application of these principles are excellent. To read these chapters and that entitled "Primum Non Nocere," is to become conscious of the many problems which beset the practitioner in managing every case. Emphasis is placed on the necessity of individualization of treatment, as influenced by (a) the patient, (b) the organs and functional activities, (c) the nature of the disease, and (d) such reactions as tolerance and habituation. The influence of environment is discussed in its many aspects, not only are effects of temperature, light, climate, season and ventilation taken up, but some excellent advice is given in the subject of consultations and change of physicians. In summarizing the chapter on method in therapeutics, he says: "Therapeutic facts are extremely complex and difficult to establish. . . ." The appreciation of the influence of a therapeutic measure is always derived from the idea that is formed of the diagnosis. In clinical observations the tendency to confuse facts, interpretations and opinions, is to be guarded against. Facts alone have scientific value. Numbers add less to the value of conclusions than does precision. Good statistics imply several conditions, the most important of which is the identity of the elements composing them. In the final chapter appears a list of drugs and other therapeutic measures classified according to his scheme. The author has written with force, a very readable book; one worth any physician's time. Its value is enhanced by the use of good paper, clear type and a most satisfactory arrangement. P. C.



**"Prevention of Infectious Diseases."** By Alvah H. Doty, M. D., Health Officer of the Port of New York. D. Appleton & Co., New York. 1911.

In presenting his work on the prevention of infectious diseases, Dr. Doty has proven that many of the theories heretofore accepted are erroneous, and in fact "aid in the extension rather than the prevention of these diseases." The proofs adduced are in many instances the result of recent research in sanitary science, and are found for the first time in text-book form. Of particular value and interest is the discussion of fomites. Doty claims that the idea of disease being carried by clothing, bedding, cargoes of vessels, money, rags, etc., would long since have been shown to be a mistake, were it not for the fact that it offers an easy explanation of various epidemics, which careful and intelligent investigation might have traced to their proper source. The really important sources of infection are personal contact; mild, ambulatory, irregular and unrecognized cases; the so-called "carriers" who transmit the disease without showing any symptoms themselves; transmission through insects; and finally contamination of food and water supplies.

Following are a few of Dr. Doty's statements, differing to a greater or less extent from the older teachings: "Persons and not things transmit disease"; dirty rags and second-hand clothing do not carry disease; "cargoes of vessels do not act as mediums of infection and unless there is a specific reason for it, they should not be disturbed in instances where an infectious disease appears on board"; diphtheria, measles, scarlet fever and other diseases of this class are not disseminated by "clothing of well children in whose homes some form of infectious disease exists or has lately visited," but rather that school epidemics are due to the presence of mild or unrecognized cases, thus emphasizing the great importance of school inspection. "The real danger of transmitting infection, through the medium of the physician or nurse or others who are in charge of the case, is by the hands rather than the clothing."

Special chapters are devoted to the subjects of marine sanitation, smallpox, yellow fever, typhus fever, cholera, plague, disinfection, disinfectants, isolation of patients, the thermometer and the mosquito. Under the discussion of yellow fever a full account is given of the commission appointed by the President of the United States in 1900, to study that disease in Cuba, and of the history-making results attained by Drs. Reed, Carroll, Agrimonte, Lazear and their associates.

In the study of plague problems Doty believes the infected rat the chief cause of the spread of disease, still he believes it is and has been accepted to the exclusion of other extremely possible modes of transmission.

"The Prevention of Infectious Diseases" is a book of great practical value to the health and quarantine officer, and of interest to the medical profession at large.

L. D. M.

**Dyspepsia, Varieties and Treatment.** By M. Solton Fenwick, M. D. Published by W. B. Saunders Co., Philadelphia. 1910.

Any book which is the "outcome of the experience gained by the personal examination and treatment of more than 18,000 patients" deserves looking into, especially when the subject is one of great interest to every physician.

The preface begins well by pointing out that there is an almost universal disposition to regard indigestion as gastric in origin when in a large proportion of cases, the intestines and other organs are at fault; also that the gastro-intestinal tract is too closely interrelated physiologically to allow of a disturbance in only one short section. He warns us against the common mistake of considering gastrectasis and gastropnoia as isolated pri-

mary conditions, and in various ways shows the necessity of studying the abdominal organs as a whole.

Unfortunately, the book itself abounds in inconsistencies which appear to be the result of an attempt to fit the author's ripe experience into a scheme which he says he drew up over sixteen years ago. For example, although he says it is extremely doubtful whether persistent hyperacidity ever exists independently of hypersecretion, and that he believes the latter to be due always to organic disease, yet he writes two separate articles in which there are schemes for differentiating the two. Again, at the end of a long discourse on the treatment of hypersecretion he says he cannot recall one out of 1000 cases who has recovered without operation, yet in the treatment of hyperacidity, operations are not mentioned. It is also surprising that a book which can devote twenty-eight pages to the discussion of dyspepsia due to the presence of animals in the stomach should make but cursory reference to ulcer and carcinoma.

The advocates of early diagnosis of cancer will be startled to hear that "The coexistence of enlargement of the liver, nodules in the skin of the abdomen or fluid in the peritoneal or pleural cavities all bespeak the probability of a malignant growth."

If his descriptions of "Myasthenia gastrica," "Gastric hyperesthesia," "Gastric neurasthenia" and gastropnoia could only be worked into one picture, as he frequently hints that they should be, he could dispense with the forced differential diagnoses and needless repetitions on treatment, and instead of more confusion, a great light could be thrown upon these common conditions. He recognizes in all of them the same etiology, the same heredity, the effect of wasting diseases, rapid reduction and fatigue; he notes the association with mucous colitis and general enteropnoia, and states that the large intestine always shares in the asthenic condition of the stomach.

Although the importance of intestinal indigestion is spoken of in the preface, it receives very inadequate discussion and the examination of stools is not sufficiently encouraged. In fact all the laboratory aids to diagnosis, such as the occult blood test, etc., are slighted, and the X-Ray is hardly mentioned.

The sections on treatment are generally very good and sane though the dietetic instructions might be a little more detailed.

If the author would only break away from his needless classification and rewrite his book from the standpoint of his preface, his wide knowledge of the subject, keen observation and able therapeutics would make a remarkably good monograph a third the size of the present volume. As it is, it will amply repay those who would seek out the author's experience on various points and his methods of treatment.

W. C. A.

**Diseases of the Skin.** By Henry W. Stelwagon, M. D., Ph. D. Sixth Edition, revised. Published by W. B. Saunders Co., Philadelphia and London, 1910.

This book is deservedly considered one of the best text books on dermatology and in its new (sixth) edition is brought well up to date. Due consideration is given various subjects that have been prominent recently, as for example, pellagra, sporotrichosis, grain-mite, dermatitis, brown-tail moth dermatitis, various tropical skin diseases, granuloma annulare, lichen nitidus, etc. The book is very well illustrated and many new plates of special value have been added. The etiology and pathology of the various dermatoses are briefly but clearly described and special attention is paid to diagnosis and treatment. This latter feature is of particular value to the practitioner.

H. E. A.

**The Care and Training of Children.** By Le Grand Kerr, M. D. Funk and Wagnalls Co., N. Y. 1910.

The subjects treated in this small volume range from the regulating of a child's diet, bowels, bathing and sleep to his moral training and education, and concludes with a chapter on evil habits and the sex problem.

It is essentially a parents' book and while containing many useful suggestions, all physicians would not agree with some of Dr. Kerr's ideas, as for example, considering the morning cup of coffee harmless for children arriving at the school age.

The author makes no pretense at originality and has not added anything of value to the more able works already written along these lines.

E. H. W.

**Case Histories in Pediatrics.** By John Lovett Morse, M. D.; published by W. M. Leonard, Boston. 1911.

Although this volume is small it contains a large amount of information; and gives the most recent views on the topics presented. It particularly explains the means of diagnosis and of differential diagnosis; not simply the methods employed in collecting data, but especially the sifting process by which the data have always to be analyzed and weighed. In treatment likewise the book gives many helpful points, not only as to what to do but also as to what not to do. There can be no doubt of the value of the case method in teaching, for it is the method of every-day work. The histories are given of actual cases met in practice; in each case the physical findings are described; the possibilities as to diagnosis are discussed; it is shown how an accurate conclusion is to be reached in every similar case; also what is to be done and what results may rightly be expected from proper treatment. The book is really as advertised, a post-graduate course in pediatrics; and written by a man of large experience, it affords every physician an opportunity to become acquainted with the most up-to-date views about disease in children, without traveling to Boston to learn them. The one criticism to be made is that the entire field of pediatrics is not covered; but this could not be expected in the presentation of 100 case histories. No doubt Dr. Morse will ultimately write a supplementary volume; and in the meantime no one will waste dollars or time who buys and studies the present volume.

W. F. C.

**Golden Rules of Diagnosis and Treatment of Diseases.** Henry A. Cables, B. S., M. D. Published by C. V. Mosby Co., St. Louis, 1911.

This volume seems to occupy a place midway between a quiz compend and an abridged text book, and it is therefore difficult to determine whether it would be a boon to the "busy practitioner" or a guide to the student. What information it contains covering the diseases of the abdominal and thoracic viscera, blood ductless glands, vascular system, and injections and constitutional diseases, is fairly accurate and embodies most of the salient features of those disorders. Naturally in so small a volume (8 vo. 300 pages) the presentation of the signs and symptoms is confined to a mere enumeration. The treatments recommended, as the author announces, are compiled "from the literature and supplemented by the author's experience." The prescriptions are for the most part of the standard type and present nothing of striking novelty except that one might object to the author's recommendation of mercury in the treatment of pulmonary tuberculosis and to his advice against the employment of tuberculin. If this review conveys no decided expression of approval or the reverse, of this book, it will have been successful in reproducing the impression made on the mind of the reviewer.

G. H. T.

**Bismuth Paste in Chronic Suppurations.** Emil G. Beck, M. D. Published by C. V. Mosby, St. Louis, 1910.

A book devoted to the use of Bismuth Paste to fill cavities, stop discharges and close sinuses. Dr. Beck has to a large extent given up the idea earlier advanced that the therapeutic value of the Bismuth Paste depended upon its radio-activity and now believes that the chemotactic property of the paste is the prime factor. Although this gives the mechanical support of the paste a secondary role, he still holds by a fine thread to its radio-activity, especially when exposed to the X-Rays. I should rather reverse the position of the first two factors and should look at the third as gently as I could. As to diagnostic evidence of the ramifications of chronic sinuses, especially tuberculous sinuses, Bismuth injected in the manner described is surely convincing and explains so that he who runs may read how operation, no matter how radical for the cure of such chronic discharges, so usually fails of its purpose and puts the surgeon who persists in the practice in rather an unfavorable light. As a therapeutic agent Dr. Beck makes out a good case for Bismuth Paste, and not alone Dr. Beck, but most surgeons have found it the greatest addition to our armamentarium in the treatment of some conditions that has been offered. In sinuses existing around bones and joints properly used in selected cases it is of inestimable value and osteo-myelitic spaces heal as kindly and as often, when filled, as those caused by tuberculosis. It is a method which should be carefully tried in proper cases. Dr. Beck advises it in all sorts of cases, from middle-ear disease to tuberculous peritonitis. In fact would fill almost any place with Bismuth and grease. I am afraid it will be overdone and get a bad reputation from misuse rather than from failure to use. We regret to see in an apparently well-gotten up book many misleading radiograms which label evident luetic lesions as tuberculosis, but as the ordinary purchaser gets it for its suggestion of treatment and not for its pathology, probably no great harm will follow such carelessness.

S. J. H.

#### DR. HENRY J. KREUTZMANN'S STATEMENT.

To the Editor of the State Journal:

Dear Sir:

Kindly publish in the California State Journal of Medicine the following "Correction":

In the California State Journal of Medicine for June, 1910, page 216, you have printed, "Dr. Von Hoffman's Statement." This statement refers to an article that appeared in "The Journal" April and May, 1910, in which article I accused Dr. Von Hoffman of a grave breach of medical ethics and decency committed by examining a woman not for the purpose of diagnosis and treatment, but in order to be able to go on the witness stand and give evidence against defendant: that this examination was made upon request of the woman's (plaintiff's) lawyer, who had instituted a suit for damages against me and that Dr. Von Hoffman's testimony was theatrical only.

Dr. v. H. says in his statement, "it was some time previous to the operation that the patient came to me for examination. My diagnosis was fibroid of the uterus. After this I did not see the patient . . . until she again came to my office, after suit had been instituted. I examined her. The result of my examination being the same as on the previous examination. . . . At this time her lawyer visited my office and endeavored to obtain information favorable to his client. His visits ceased when he failed to secure more than the facts."

Now when I made this grave charge against Dr.



v. H. I did not act on "misinformation," as Dr. Von Hoffman stated; I had a substantial basis for my accusations and this basis is the sworn testimony of Dr. v. H., given on the witness stand during the trial. Through a peculiar incident, though I lost almost my whole library and all the records, etc., in the fire, the transcript of testimony of Dr. Von Hoffman, Dr. Bell and Dr. Putnam was saved. Page 34 of this transcript is found:

Direct examination of Dr. Von Hoffman, called for the plaintiff, sworn.

Mr. Burt (attorney for the plaintiff). Q. Do you know Mrs. B., one of the plaintiffs here?

A. Yes, sir.

Q. Do you remember her having gone to see you some time in September, 1897, for the purpose of consulting you in regard to her trouble?

(The operation was performed in the latter part of September. Dr. Kreutzmann.)

A. I do not remember it.

Q. Do you know a lady named Mrs. M.?

A. Yes, sir.

Q. Do you remember Mrs. B. having gone to your office with Mrs. M. about that time in 1897?

A. I do not remember.

Page 36:

Q. Have you made an examination of Mrs. B. at any time that you can remember?

A. Yes, sir; after I saw you, after you came to my office and asked to send Mrs. B. to me, I examined her again, at my office.

Q. Was that after you stated that you could not remember her first visit?

A. Yes, sir.

Cross-examination of Dr. Charles Von Hoffman. Page 37:

Mr. Loewy (defendant's attorney). Q. At what time do you remember that you examined Mrs. B.?

A. I do not remember the date. It was after her lawyer came to me.

This sworn testimony is a direct contradiction of his entire statement. In his statement Dr. v. H. knows that the woman came to him prior to the operation; he remembered that in 1910. But he swore on the witness stand that he does not remember of such a visit. In his statement Dr. v. H. avers, that the plaintiff's lawyer came to him after he, Dr. v. H., had made two examinations of Mrs. B. In his testimony he states twice, that he examined Mrs. B. only after her lawyer came to him.

Only one of the two utterances of Dr. Von Hoffman can be true, either the statement or the sworn testimony. I will not believe that Dr. Von Hoffman perjured himself. I will take the charitable view, that Dr. Von Hoffman told the truth as he swore he would do; that his statement in the "Journal" is a feeble attempt to set himself right before his colleagues.

Furthermore Dr. v. H. did not testify about the facts in the case at the time of the operation or prior thereto, for the simple reason that he denied any knowledge of the case at that time. Plaintiff's lawyer wanted theoretical testimony to the effect that it was easy to make a diagnosis of a fibroid tumor, such as found on Mrs. B. and that a physician employing ordinary care and skill should have made the diagnosis as Dr. Von Hoffman did.

Dr. v. H. examined the woman half a year after the operation; then the question of an ovarian tumor and of pregnancy had been settled; a mere tyro could then have made the diagnosis, but Dr. v. H. does not hesitate to answer the question:

Q. Was there any difficulty then in distinguishing between the nature of the trouble and an ovarian tumor?

A. No, sir.

Q. Could any physician exercising ordinary care and skill in the profession, distinguish between the two?

A. I think he would have found the same as I found, that it was an enlargement of the uterus.

(This last question was given after some talk about "ordinary care and skill." Some of the answers of Dr. v. H. were as follows):

A. I do not think there would be much difficulty.

A. I do not think it would be very difficult to distinguish between an enlargement of the uterus and an ovarian tumor.

And so merrily on!

To anyone who has any knowledge of the ways, in which "expert testimony" is secured, it is clear, that a lawyer will not risk to put a witness on the stand, before he has gone over the subject with the would-be expert, a sort of rehearsal goes on; plaintiffs' shrewd lawyer did not waste his visits (note plural in Dr. v. H.'s statement) to ask about facts; he made sure that Dr. Von Hoffman was willing to answer the theoretical questions in such a way as he needed them.

When a person sues for damages for an injury received in an accident, it is well within the lines of medical ethics, that a physician should examine such a person upon request of a lawyer in order to get evidence and to be enabled to go on the witness stand.

But, when a physician is sued for damages for alleged malpractice (most of which are instituted from hate, spite, malevolence or for blackmailing purposes) the case is entirely different. No one physician on earth is exempt from errors of judgment in diagnosing and treating patients; it is the duty of every practitioner to keep this well in mind constantly; it is the duty of an ethical physician to do his utmost to prevent a malpractice-suit against a fellow practitioner. It is one of the most contemptible, most sordid breaches of medical ethics to encourage, to aid and to assist a suit for alleged malpractice against a colleague.

It had been my intention to make formal charges against Dr. Von Hoffman before the Committee on Ethics of the San Francisco County Medical Society. As the case was not decided by the Supreme Court for years, I forgot about that. I would not have written this "Correction" but for the fact, that Dr. Von Hoffman's name appeared, some time ago, as one to open a discussion of a paper, read before the San Francisco County Medical Society.

I do not know the exact procedure in such a case, but I consider it a distinction, an honor to be called upon to open a discussion. The San Francisco County Medical Society stands for professional decency; no body of decent medical men can afford to show any distinction at its disposal to any one who is guilty of gross breach of medical ethics.

Heretofore, in my paper, "History of a Lawsuit," I have merely made a statement of the case; Dr. Von Hoffman has made a statement; one man's word is as good as another's. But now through the sworn testimony of Dr. v. H., I have shown that his statement is a fabrication from beginning to end, that Dr. Von Hoffman stands convicted, through his own testimony, of the grave charges I made against him. I bring these facts to the cognizance of the officers and members of the San Francisco County Medical Society. As far as I am concerned Dr. Von Hoffman may continue to be a member of this organization; but I do protest against any further distinction or honor being shown Dr. v. H. Any such act would be an insult to every decent member of the San Francisco County Medical Society; it would put the San Francisco County Medical Society on a very low standing and would render the Committee on Medical Ethics a ridiculous farce.

Sincerely yours,

DR. HENRY J. KREUTZMANN.

#### ARMY MEDICAL CORPS EXAMINATIONS.

The Surgeon-General of the Army announces that preliminary examinations for appointment of first lieutenants in the Army Medical Corps will be held

on July 10, 1911, and September 5, 1911, at points to be hereafter designated.

Full information concerning these examinations can be procured upon application to the "Surgeon-General, U. S. Army, Washington, D. C." The essential requirements to securing an invitation are that the applicant shall be a citizen of the United States, shall be between 22 and 30 years of age, a graduate of a medical school legally authorized to confer the degree of doctor of medicine, shall be of good moral character and habits, and shall have had at least one year's hospital training, after graduation. The examinations will be held concurrently throughout the country at points where boards can be convened. Due consideration will be given to localities from which applications are received, in order to lessen the traveling expenses of applicants as much as possible.

The examination in subjects of general education (mathematics, geography, history, general literature, and Latin) may be omitted in the case of applicants holding diplomas from reputable literary or scientific colleges, normal schools or high schools, or graduates of medical schools which require an entrance examination satisfactory to the faculty of the Army Medical School.

In order to perfect all necessary arrangements for the examination, applications must be complete and in possession of the Adjutant-General at least three weeks before the date of examination. Early attention is therefore enjoined upon all intending applicants. There are at present sixty-one vacancies in the Medical Corps of the Army.

#### THE LANE MEDICAL LECTURES FOR 1911.

The Lane Medical Lectures were founded in 1896 by Dr. Levi Cooper Lane, then President of Cooper Medical College. They consist of a "free course of lectures on medical subjects by men distinguished at home or abroad for their work in either medicine or surgery, and are intended for medical students and the medical profession at large."

The Directors of Cooper Medical College have invited Dr. Ernest Fuchs, Professor of Ophthalmology at the University of Vienna, for the course of 1911. The course will consist of ten lectures and demonstrations to be given in Lane Hall of Cooper Medical College during the week beginning August 21st. The program is as follows:

- August 21st—11 a. m. Operations on the Eye.  
4:30 p. m. The Eye in Tabes.
- August 22nd—11 a. m. Trachoma.  
4:30 p. m. The Eye in Tabes.
- August 23rd—11 a. m. Tumors of the Eye.  
4:30 p. m. The Eye in Brain Affections.
- August 24th—11 a. m. General Symptomatology.  
4:30 p. m. The Eye in Brain Affections.
- August 25th—11 a. m. Corneal Ulcers.  
4:30 p. m. The anatomical and functional development of the eye from its lowest to its highest type, through the animal kingdom.

All of these lectures are intended for the general practitioner as well as the specialist. The lectures will be delivered in English in Lane Hall, San Francisco, and will be fully illustrated. Members of the medical profession, including students of medicine, are cordially invited to attend.

The previous courses of Lane Medical Lectures have been given as follows:

Sir William MacEwen, M. D., Regius Professor, University of Glasgow—"Surgery of the Brain."

Christopher Heath, F. R. C. S., England, Professor of Clinical Surgery, University College, London.—"Congenital Malformations, Aneurism, and Other Surgical Topics."

Thomas Clifford Allbutt, M. D., F. R. S., Regius Professor of Physic, University of Cambridge, England.—"Diseases of the Heart."

Nicholas Senn, M. D., Ph. L. L. D., Professor of Surgery, Rush Medical College.—"Topics in General Surgery."

Sir Michel Foster, K. C. V., D. C. L., Professor of Physiology, Cambridge, England.—"History of Physiology."

Sir Malcolm Morris, F. R. C. S., Edinburgh, M. R. C. S., England, Surgeon to the Skin Department, St. Mary's Hospital, London.—"Social Aspects of Dermatology."

Sir Charles B. Ball, M. Ch., F. R. C. S., Ireland, Regius Professor of Surgery, University of Dublin.—"Diseases of the Rectum."

Oscar H. Allis, M. D., Philadelphia, Pennsylvania.—"Dislocations and Fractures Involving Larger Bones."

William H. Welch, M. D., L. L. D., Professor of Pathology, Johns Hopkins University, Baltimore.—"Infection and Immunity."

Sir Patrick Manson, K. C. M. G., F. R. S., etc.—"Tropical Diseases."

John C. McVail, M. D., D. P. H., Cambridge, Glasgow.—"Practical Hygiene, Epidemics and Preventive Medicine."

Reginald Heber Fitz, M. D., L. L. D., Hersey Professor of Theory and Practice of Medicine, Harvard University, Boston, Mass.—"A Consideration of Some Features of the Lymphatic System."

Subsequent courses of Lane Medical lectures will be under the auspices of the Medical Department of Leland Stanford Jr. University.

#### In Error.

On page 178 of the June issue appears the name of C. Thornton, San Diego, under New Members; it should read A. J. Thornton.

#### NEW MEMBERS.

Gundry, F. J., Bakersfield.  
Long, S. F., Bakersfield.  
Stice, T. H., San Jose.  
Durgin, E. H., Cupertino.  
Pius, Chas., Montague.  
Shaul, J. W., Santa Ana.  
Sheldon, D. W., Perris.  
Keck, W. H., Santa Cruz.  
Graham, R. W., Los Angeles.  
McNeile, L. G., Los Angeles.  
Deering, W. E., Los Angeles.  
Hooker, M. O., San Francisco.  
Evans, Morris, San Francisco.  
Topham, Ed., San Francisco.  
Knapp, Edw. V., San Francisco.  
Green, A. S., San Francisco.  
Beasley, S. O., San Francisco.  
Parsons, E. W., San Francisco.  
Ragland, W. A., San Francisco.  
Waiss, A. S., San Francisco.  
Sperry, M. A., San Francisco.  
Williamson, Wm. P., San Diego.  
Riehl, W. F. W., San Diego.  
Trueblood, W. E., Maricopa.  
Cook, W. H., McKittrick.  
Smith, S. F., Bakersfield.

#### DEATHS.

Caldwell, Robt., San Jose.  
Bowie, Robt. L., formerly of San Francisco; died in Nagasaki, Japan.  
Smith, Wm. S., Ocean Park, Cal.  
Blake, S. L., San Francisco.  
Bellows, C. S., Artesia.  
Parker, T. Van V., Soldiers' Home (Los Angeles County).  
Elster, L. A., Alameda.  
Withers, Richard J., Los Angeles.  
Rutledge, A. J., Greenville, Cal.  
Orr, A. C., Whittier, Cal.  
Watenpugh, J. W., Weaverville.



# California State Journal of Medicine.

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## IMPORTANT NOTICE!

All Scientific Papers submitted for Publication must be Typewritten.

Notify the office promptly of any change of address, in order that mailing list and addresses in the Register may be corrected.

VOL. IX AUGUST, 1911. No. 8

## EDITORIAL NOTES.

The recent meeting of the American Medical Association in Los Angeles was a great success.

And first let us extend to our  
**THE A. M. A. MEETING.** colleagues in the South the sincerest congratulations and compliments upon the way in which

they entertained the Association and cared for the comfort and the pleasure of all who attended the meeting. Especially to the Committee of Arrangements all credit and our thanks are due; every smallest detail had been thought of and arranged for the convenience of the visitor; there were no words but words of praise and astonishment and our Eastern friends have gone away with a high opinion of California hospitality. Some twenty-two hundred members registered and it was estimated that each member registering represented, on an average, three persons in attendance; comment was frequently made that at no previous meeting had so many members brought their wives, daughters, sisters. The section programs were, in most instances, well arranged and full of interest. The attendance at the sections, in spite of the many beautiful and attractive things about Los Angeles which might have served to tempt the members to wander away, was excellent. The reports of the various officers and committees showed more than the usual amount of good work and progress during the past year, and the House of Delegates got through its work in less

time than at any previous session. The following officers were elected: President, Abraham Jacobi, New York; First Vice-President, William Jarvis Barlow, Los Angeles; Second Vice-President, F. W. McRae, Atlanta, Ga.; Third Vice-President, W. R. Tipton, Las Vegas; Fourth Vice-President, A. L. Wright, Carroll, Iowa; Secretary, Alexander R. Craig, Chicago; Treasurer, Wm. A. Pusey, Chicago; Trustees, to serve for three years, Philip Marvel, Atlantic City; Philip Mills Jones, San Francisco; W. T. Sarles, Sparta, Wis. The place for the next meeting was determined to be Atlantic City; the time will be set by the Board of Trustees. The former Secretary, Dr. George H. Simmons, has served the Association in that capacity for many years and for several years past has been desirous of relinquishing the office. A vote of appreciation and thanks was extended to him by the House of Delegates. Dr. Craig, his successor, comes from Pennsylvania, where he has been identified with the State Society work for some years. The JOURNAL extends to him its best wishes in his new position.

The House of Delegates, at the Los Angeles session of the American Medical Association, passed a resolution commending the new  
**PUBLIC HEALTH.** Owen bill, Senate No. 1. This bill is a great improvement over the previous one introduced by Mr. Owen, and in all probability it, or a bill somewhat similar to it, will eventually be passed by the Congress. At the first suggestion of a National Department of Public Health, a number of the southern states were much disturbed and objected on the ground that it would interfere with the rights of the states; this objection has now been removed and a number of the southern states, through health bodies and the like, have voiced their approval of the measure. Life insurance companies are taking an active part in promoting a feeling of support of the movement, and well they should, for every progressive measure that improves public health conditions tends to lengthen human life and thus directly effects the insurance companies advantageously. In the course of time this activity on the part of the insurance companies may be expected to counteract in part the effect of the so-called "league for medical freedom," which, as everybody knows, is trying to oppose and tear down everything tending to improve health conditions. When you meet any one who is interested in or belongs to this "league," just ask him if he knows who is putting up the money to support it, to pay for its very expensive news bureau, to pay for the advertisements with which it has subsidized a considerable number of newspapers—and why the money is spent! It is not a promising time for the corrupt interests; people are asking too many "whys." Some interest or interests are spending hundreds of thousands of dollars to defeat the Owen bill. Why? Also from some source come many thousands of dollars to support the "league for medical freedom." Why? There are some very fine and well-paid-for brains running this "league." Who pays for them and why? *Collier's Weekly* has had some very illuminating articles explaining the "why."

It is of the utmost importance that county society secretaries should realize that the business of conducting the affairs of the State Society, and of the component societies, is no trifling matter.

The work has grown so much, in the last few years, and especially since the State Society undertook the defense of all members in good standing, in malpractice suits, that it can only be properly conducted by the exercise of business principles. Members receive, for their small annual assessment, what it would cost them at least fifteen or twenty dollars to buy outside of the Society. But it takes money to run the Society and do all the work it is doing. This money, when due, must be promptly paid. All assessments are due and payable in January; county societies and individual members thereof will be carried till the first of April, but on that date all who have not paid will be dropped and any cause for alleged malpractice occurring while a member is not in good standing—if his assessment has not been sent in by his county secretary—will not be defended by the State Society. This may seem to you a trivial matter, but if you happen to have a suit filed against you some day, and then discover that you had allowed your dues to accumulate and were not in good standing, it would not seem so trivial. There is some difference between the few dollars you pay for your county society dues and the several hundreds or thousands of dollars it might cost you to defend a suit. And remember that you never can tell when such a suit will be instigated. Membership is worth a good deal to you; far too much for you to take any chances of allowing it to lapse.

Some little comment and criticism has arisen from the publication in the JOURNAL, at various times, of matter relating to a suit against Dr. Kreutzmann in which Dr. von Hoffman testified. Space has been given to the statements of these gentlemen respectively, and in former issues to a rather lengthy discussion of the case itself, for the reason that it is typical of the sort of suit that never should be brought and that imposes a terrible burden and a great injustice upon the physician who is sued. In this particular case, it is generally understood, the personal equation was far from negligible; there was said to be more or less unfriendly feeling existing between the two gentlemen who have engaged in the controversy. But setting that element aside, we should consider the case as an ordinary example of the sort of malpractice suit that may at any time be filed against any one of us, which has no real merit in fact and which we should unitedly oppose. No physician could live and practice for a year without making some error in diagnosis. This the law itself recognizes. Ordinary skill is all that the law demands; the trouble is not with the law but with the sympathies of jurymen, laymen who do not understand and who may be greatly influenced by the words of an opposing physician whose opinion may be honest but distorted by his feelings. The State Society is now defending all of its members against malpractice suits; it is a great responsibility

and it should be so considered by every member of the Society, for any member may be sued at any time, justly or unjustly. Experience has shown that nearly all these suits are without the shadow of justice; they are merely attempts to avoid paying a bill, or pure blackmail. If we all stand together and refuse to be blackmailed or defrauded of our just charges, there will soon be an end to these tricky practices. But each one of us must do his part and all envy or personal animosity must be forgotten.

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The discussion over the "product patent," or a patent covering a medicinal *substance* in contradistinction to a process patent, or a patent issued covering merely a certain definite *process* for manufacturing a medicinal substance,

has lasted many years and would fill sundry volumes. Just at present it is of interest because of the fact that a most important case is now in the United States courts. Dr. Takamine separated, by a certain process of his own devising, the active principal from the suprarenal glands; the existence of such a substance had been known since 1856, but it had not been isolated in its pure form. The United States issued a patent on the product to Dr. Takamine, and this product was later placed on the market by Parke, Davis & Co., under the name "adrenalin.". The substance is generally referred to in technical literature under the name epinephrine, and will be found described under that name in "New and Nonofficial Remedies," issued by the Council on Pharmacy and Chemistry of the A. M. A. The H. K. Mulford Company prepared this substance by a different process and put it on the market under the name "adrin." Action was taken to sustain the patent issued to Dr. Takamine, and on April 29, 1911, a decision sustaining certain of the claims of Dr. Takamine was handed down. The Mulford Company announce that they will withdraw their preparations pending the final settlement of the case on appeal. The final result of this case will be interesting, particularly as we understand that the Section on Pharmacology of the A. M. A., passed resolutions deploring the issuing of product patents. Patents of this character would not seem to work to the best advantage in the development of pharmacologic practice and medicine in general.

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A man in Los Angeles, by the name of Thomas Powell, M. D., has certainly reached the extreme point of modesty in announcing a scientific and a wonderful discovery. He must be a most remarkable man. He says he has written a book, and certainly he seems to have sent out a prospectus of a "New and practically complete medical philosophy entitled Fundamentals and Requirements of Health and Disease." There is nothing so startling about the title, except that it implies the filling of a pretty large order. The real modesty of the man appears when he speaks of himself. The "prospectus" states that "the author has solved the confessedly unsolved problems



of life from locomotion to tumors, tubercles and cancer cells, by pointing out the hitherto unknown causative factors." Again is our admiration for the author's modesty excited when we read that his book contains "a fund of information similar in character and surpassing in point of importance that which is embodied in the discoveries of Sir Isaac Newton." Poor old Ike!

The medical profession has rarely listened to an address of greater range or more important application than the masterly presentation of Dr. Murphy at the opening of the sixty-second annual convention of the American Medical Association. Among the many subjects considered by the incoming president was that of medical education. It is possible that among matters of more immediate interest its significance may be overlooked, but fundamentally it is by far the most important part of Dr. Murphy's address.

Those of us who are in a position to know the educational status praesens of the great bulk of the medical profession are most thoroughly aware that the chief objects for which they have endured several years of instruction have not been attained. It is assumed that the graduate leaves college prepared to deal with the problems of disease according to the accepted methods of science—considering each symptom of his patient's condition in relation to its probable cause—seeing in his mind's eye its physiological relations and foreseeing its possible pathological results. Further, that the ability thus assumed will be strengthened by practice until the scientific habit of investigation becomes automatic by repetition, and those seeking the physician's aid receive the benefit of trained scientific observation and thought. Only thus is made the scientist in other fields of knowledge. Such is the theory, but what is the actual practice?

To begin with the qualifying examinations in greater part seek knowledge of facts and not the ability to make use of them. When the latter requirement is maintained a large percentage of the men after making the necessary mental effort, for the time being, on entering practice fall into the rut of routine, varied by the therapeutic fad of the hour. It is no assumption, but a statement of fact based on an intimate personal knowledge of the mental equipment of medical men of all periods of life and from schools of all classes, that compels the writer to assert that only a small proportion of practitioners habitually consider a case from the scientific standpoint. When a thorax is correctly auscultated, (which is by no means the invariable rule) and, let us say, prolonged expiration noted, the observer thinks of the discovery, not in terms of

altered lung tissue but as signs of tuberculosis. The discovery of a Babinski reflex is mentally associated with certain diseases, and not with a definite perversion of the normal physiology of the cord. To a large proportion of the profession, how large it would be unpleasant to state, mankind suffers from diseases characterized by certain symptoms for which certain remedies are good. Whatever be the theory of their education, that is their practice. They may have been taught differently in college; they have forgotten their teaching. If anyone doubts this let him investigate the answers given by graduates of ten and more years' standing at the state examinations. They are a mild, a very mild test, but they will teach the optimist something. Now what is the cause and what the remedy of this state of affairs? Dr. Murphy puts his finger accurately on one weakness—we have too few teachers. The medical instructor having the gift of teaching or trained therein as an art is the exception in a medical college. The professor of the past knew no more of the subject than he could extract from a text-book, the university professor of the present is, as Dr. Murphy indicates, a specialist usually working in a limited field of the subject he teaches and quite often with none of the instincts of a teacher or the ability of an expositor. In a sense the conduct of medical education is absurd. Instructors in primary, grammar and high schools are all taught the art of teaching, but in a field in which the complexities and interrelations are much more profound than in general education, pedagogy has no place. Furthermore the average curriculum which should be the work of skilled pedagogues is nothing more than a statement that certain subjects should be taught for a certain number of hours. The subjects for the most part are taught as though the teacher knew nothing else and each item were equally important. The anatomist rarely refers to surgery and morbid anatomy; the teacher of physiology never illustrates from the field of pathology. There is no attempt in the medical course to give the student an idea of interrelation or perspective. He is not taught to reason from one subject to another; to draw, for example, physiological conclusions from pathological data; and at the end of the course he is rarely able to do so. What wonder is it that he remains an empiric throughout his professional career, either obstinately devoted to what he may have seen others do in early life, or according to temperament, the practice of every fad that comes to the fore. To sum up, in the subjects of their profession medical men are instructed but not educated, and they never will be until medical education is subject to pedagogic principles and is taught by teachers.

H. D'ARCY POWER.

"It was noted by the nurses in the ward that the preoperative surliness became a postoperative sunniness, and scowls and complaints changed to smiles and compliments—a complete dispositional reversal."

This is the concluding sentence of a recent article. It struck us as being out of the common in contemporaneous medical literature.

**A RAY OF SUNSHINE.** Whether for praise or censure, it deserves to be detained for a moment in its career to the files. Observe the artifice of alliteration, the perfection of balance, and the ostentation of oddity. We suspect that it was written with a twinkle in the eye, the tongue in the cheek, and a nudge of the elbow. It looks as if the writer was recording the happy termination of his labor with satisfaction commensurate to his success, and in such a mood was inclined to pleasantry.

But should he have thus indulged his propensity? No doubt there are many who read their medical journals with an earnestness befitting the gravity of the matters they deal with. They would resent jocularities, or what they may deem literary flourishes, as being flippant or trivial, as much as a contractor might object to a similar departure from the technical language of a building specification. These prosaic souls would not welcome the relief from common-place technicalities which is offered by a display of humor, an apt quotation, or originality of diction.

For our part we find that much reading of current medical literature produces by its monotony a weariness or irritation of the mind. At the risk of fostering verbosity and pedantry we should rejoice if we were to meet with a medical description written with the stateliness and regular cadence of Gibbon, or with an exposition of principles in the massive and perspicuous, though turgid style of Johnson. Hyrtl's "Anatomy" is enlivened by much facetiousness. In Hilton Fagge's "Medicine" the several chapters are supplied with mottoes derived from the polite literature of England. Dr. Osler does not disdain to season his articles with classical quotations or anecdotes. Sir William Gowers once confessed that he had been expressing trite remarks in "recondite" language in order to impart to them an air of "novelty and freshness." We would tolerate much that is recondite in our medical reading for the sake of novelty and freshness. But of course,—*ne quid nimis*.

But little attention has been directed in this country to the study of conditions whose clinical picture resembles closely chronic appendicitis but in which the operative findings are an apparently normal appendix, cecum and ileum. The appendix is removed, the abdomen closed and the patient makes an uninterrupted convalescence, none the worse for the procedure,—but the symptoms are unrelieved.

These cases have been carefully studied in a number of the German clinics during the past three years. In an article published in the "*Deutsche Medicinische Wochenschrift*," No. 41, 1908, pp. 1756-58, Wilms claims that a certain number of

these patients are sufferers from what he terms *coecum mobile*. The cecal pouch is unduly movable, in some cases may be brought out of the wound and down as low as Poupart's ligament. The cardinal symptoms are: attacks of colic; tenderness over McBurney's point; accumulation of gas in the right iliac fossa, producing upon palpation the sensation of an air cushion under the hand; and chronic constipation, sometimes chronic diarrhoea. There is an absence of muscle-spasm or rigidity. For the relief of the condition he has devised a method of anchoring this abnormally mobile cecum in a retroperitoneal pouch. (*Zentralblatt für Chirurgie*, No. 37, 1908, pp. 1089-91.) Wilms claims by this method to have cured a number of cases in which a previous appendectomy performed by himself had failed to give relief.

A year later, Fischler (*Mitteilungen und den Grenzgebieten*, XX, 1909, p. 623 et seq.), studying this question, concluded that the mobility of the cecum is secondary and that the primary factor is a catarrhal process of the ileo-cecal region followed by atony and dilatation. His evidence is extremely meagre, and the three cases quoted by him are most unconvincing. The conclusions and speculations based upon the evidence Fischler presents seem to be rather the results of a green table than of a bedside study.

Stierlin, an assistant of Wilms, has collected the cases treated for *coecum mobile* in the Basil clinic and states that they have been able to cure 75% of the 43 cases operated upon by the Wilms retroperitoneal pouch method. His beautiful collection of serial radiograms shows dilatation, mobility and atony of the cecum; but one cannot help feeling that he has overlooked the importance of the general enteroptosis. The influence of diet upon these patients is not mentioned.

Stanton (*Annals of Surgery*, June, 1911, p. 813) recognizes this group of cases and claims to be able to differentiate this condition from that of chronic appendicitis by means of the location of the pain which, in the movable cecum group is in the right iliac fossa, whereas in the cases of chronic appendicitis he maintains the pain is rarely elsewhere than in the mid-abdominal region. This is a point that requires restudy as it is not born out by the experience of the writer, with respect to chronic appendicitis.

That there is a small group of patients coming to operation with the diagnosis of chronic appendicitis, but in whom the surgeon fails to reveal any lesion accounting for the symptoms, is common knowledge. These unfortunates belong to the rapidly decreasing heterogeneous *melange* labeled neurasthenics. The soundness of Wilms' contention requires further support, the rationale of his therapy much more convincing proof than has as yet come to light. But it is the duty of those in charge of our large internal and surgical clinics to study thoroughly these cases of the chronic appendicitis group by means of all the modern methods, physical and chemical, so that we may be able to bring the number of unindicated operations down to a negligible minimum.

S. H.



## ORIGINAL ARTICLES

## NASAL PLASTIC, WITH FREE TRANSPLANTATION OF BONE.\*

By L. ELOESSER, M. D., San Francisco.

Plastic surgery has in the last few years again begun to come to its own. The extension of our knowledge of the healing and of the growth of tissues, better insight into the relations of cell-life to its environment, and the progress of constructive surgery that the last decade has brought have begun to bear fruit, and men are again beginning to push forward along the paths first opened by Dieffenbach, Nelaton, Langenbeck and their compeers;—paths where work had almost ceased these fifty years.

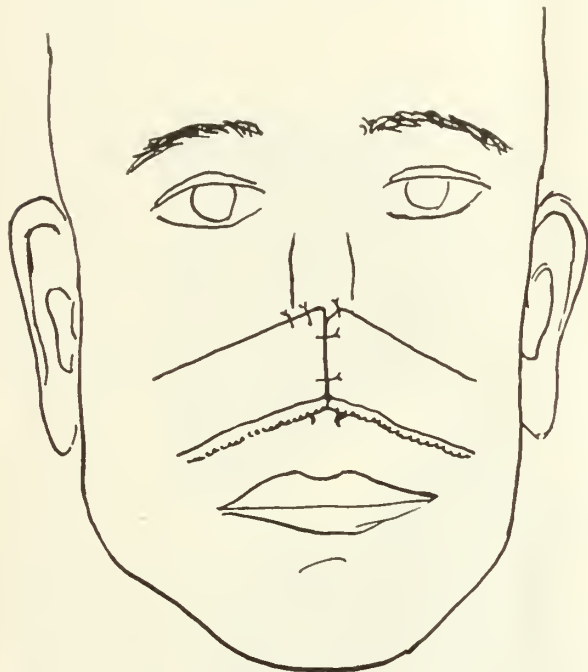


Fig. 1. Flaps from cheek attached to nose. 1st operation.

Plastic surgery of the face is ancient; one can read of plastics of the nose in Sanscrit writings. The Hindu surgeons had abundant opportunity of treating patients whose noses had been cut off in war or in captivity. They are said to have used a free transplantation from the buttocks, which were made hyperemic before operation by flagellation. Attempts by French surgeons in the beginning of the last century to reproduce these operations failed.

Dieffenbach in the middle of the last century devised many plastic operations on the face and the nose and carried them out with success. It was Schimmelbusch, however, who first enunciated the principles underlying every successful nasal reconstruction, viz.: that the new nose, if it is not to shrink and to sink to a shapeless mass, must have a lining of epithelium and a support of bone. He took his material from the forehead, making a flap of skin, subcutis, periosteum and outer layer of the frontal bone. Lexer has recently elaborated Schimmelbusch's ideas to a high degree, and shows some most notable drawings and photographs in his arti-

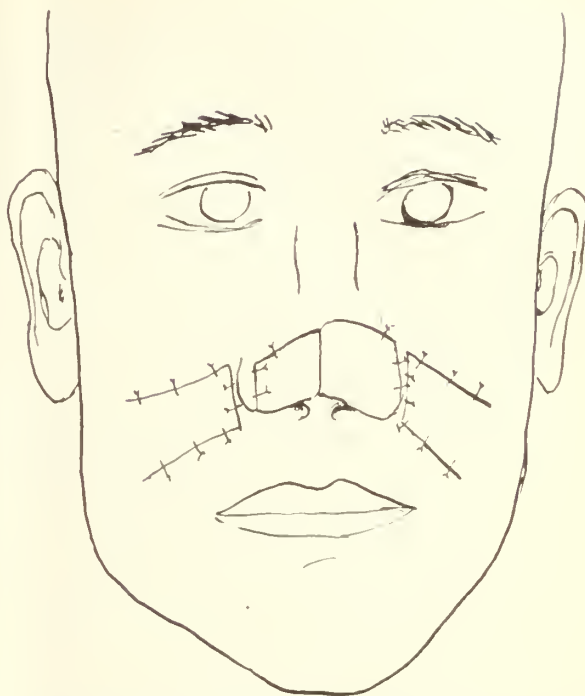


Fig. 2. Pedicles of flaps detached and sutured back into place, ends of flaps attached to nostrils. State after 2nd operation.

cle.\* He insists upon the necessity of covering both the cavities of the nose and the bony flaps with sound epithelium, and of working in healthy tissues; he uses all remnants and tabs of the old nose to this end, instead of utilizing them to patch into the new one. Lexer's work signalizes the highest development of the modern plastic.

The patient whom I should like to show you to-night is a head-waiter who was attacked by an infuriated subordinate last August. The man seized him "and chewed his nose off like a dog," as he says. I first saw him some three months after the accident, at the City and County Hospital, where Dr. Terry was good enough to let me have his charge. An Italian plastic from the forearm had been attempted unsuccessfully; this was unfortunate for two reasons, first, that the plaster cast holding the arm to the face had made a pressure-sore over the bridge of the nose, and second, that the sufferings of the patient in this strained position with his arm to his head, had been such that he declined to have anything further done which would necessitate his being put up in a cast a second time. I was therefore forced to take my material for the plastic from the head. I regret not having a photograph of the state of the patient before the first operation. The soft part of the nose was gone, the remains of the alae shrunken, and the scar of the pressure-sore on the bridge of the nose thin and of a bluish color.

At the first operation on November 17, 1910, I cut two long flaps from the cheek, following the nasolabial fold with their lower borders as far as possible, and attached their free edges to the bare edge of the septum and of the alae of the nose. They healed well, and two weeks afterward I cut the flaps through, completing the sutures around the nostrils, and sewed the remainder of the flaps back in their original position. After these wounds had healed a cleft remained in the middle of the nose where the two flaps had met. This I filled out at a third sitting with a small bit of material redundant from one flap, turning it about 90 degrees and sewing it to the freshened edges of the cleft. It healed, but

\* Read in part at the Academy of Medicine, San Francisco, April 24, 1911.

\* Archiv f. Klin. Chir., vol. 92, p. 749.

did not fill out the cleft entirely, some depression remaining. The nose at this stage presented quite a fair appearance from the front, but the tip was sunken so that the side view was not good. The patient was

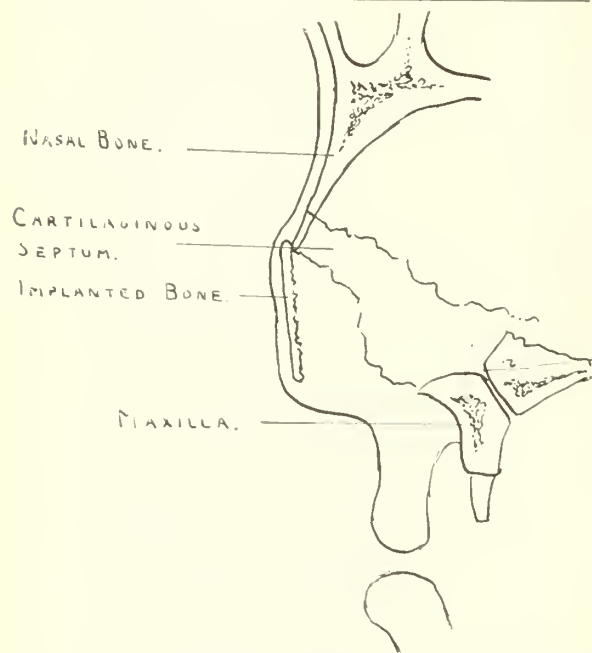


Fig. 3. Sagittal section of nose with implanted bridge-plate. State after 4th operation.

then discharged from the hospital, as he thought he could get work. I saw him again two months afterwards; he said that he found difficulty in holding his position on account of his appearance, and asked me to try to give his nose a better shape. The tip was more sunken than when he first left the hospital, and

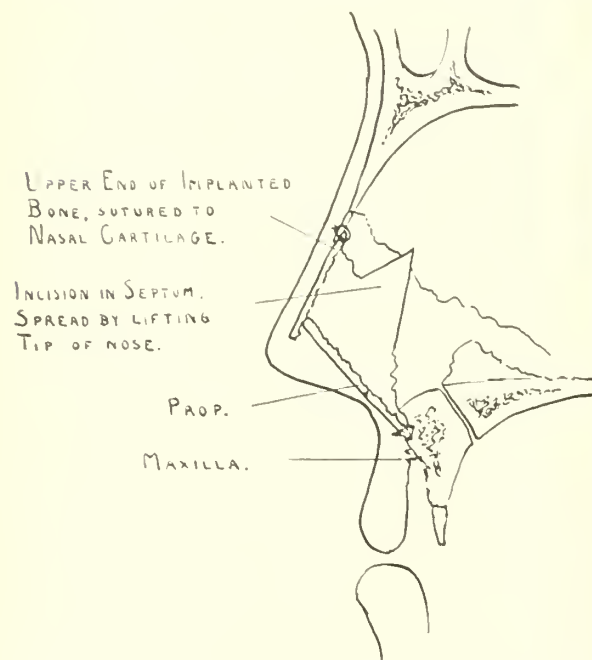


Fig. 4. Sagittal section of nose, upper end of bridge-plate sutured into notch in cartilage, prop under lower end. State after 5th operation.

the skin over the bridge at the site of the old pressure-sore was very thin. On attempting to raise the nose by inserting a forceps into the nostrils, it seemed as though it were mainly the septum which was binding the nose down. The patient was ad-

mitted to the University of California Hospital, where Drs. Sherman and Huntington kindly allowed me to go on with the plastic.

At the fourth operation, the middle of March, I sought to raise the nose by inserting a piece of bone beneath the skin of the bridge; I resected a piece of the ninth rib, about 2 cm. long, carefully preserving its periosteum, halved the piece so as to make two flat plates, and shaped one of them into a trapezoid about  $\frac{1}{2}$  cm. wide at the upper end,  $\frac{3}{4}$  cm. wide at the lower, and  $1\frac{3}{4}$  cm. long. This I inserted subcutaneously into the tip of the nose through a small curved incision along its inferior aspect, undermining the skin sufficiently far up to admit of the insertion of the little bridge-plate. I then tried to lift the tip of the nose so as to make its profile straight, but saw that the thin skin above the plate became white and anemic, so that, fearing to hazard the nutrition of the transplanted bone by this maneuver, I judged it more prudent to wait until the life of



Fig. 5. State after 5th operation.

the implanted piece was assured. The bone healed in well, but the nose was still not straight; the upper end of the implanted bone had ridden up over the tip of the nasal bone and protruded at this place with a sharp angulation, while its lower end was still not high enough to fall into the line of the bridge. I therefore undertook the fifth stage of the operation, two weeks afterwards. I first made a small incision just at the side of the bridge of the nose and drilled a minute hole into the end of the transplanted bone; through this I put a gut suture, fastening the plate into a notch made into the cartilaginous septum, so as to prevent its riding up again. I then resected a long sliver of bone from the upper edge of the same rib that had furnished me with material two weeks before, again carefully keeping its periosteum. I incised the septum of the nose along its free edge, and drilled a hole into the upper maxilla just below the nasal spine at the base (posterior end) of the incision. One end of the sliver of bone I inserted into this hole as a base, the other I endeavored to slip under the bridge-plate in the tip of the nose, but found that the cartilage of the shrunken



nasal septum bound the tip of the nose down so firmly that it was impossible to raise it far enough to get the prop of bone under it. I therefore incised the cartilaginous septum for a distance of about 1½ cm. in an upward direction, and was now able to raise the bridge-plate far enough to admit the upper end of the prop. The bridge-plate then rested on the prop as the ridge of a tent does on a tent-pole; the tip of the nose was elevated and made a line now quite straight with the rest of the bridge. The wound became infected after this last operation, probably owing to contact with the nasal mucosa; the patient had a few days of fever and an abscess showed in the gums above the upper incisors, which was drained, and healed in about a week. The patient's present appearance is gratifying. His nose is straight when seen in profile, and presents a creditable appearance from the front. The scars in his cheeks have grown paler and considerably less noticeable during the last few months, and falling to a great extent in the natural lines of the face, are not disturbing.

I think, gentlemen, that this case shows the importance of the use of autogenous living material in bone-transplantation. Had I introduced silver, or celluloid, or dead bone, or even the bone of another individual as props for my plastic, I would, I think, have stood a very slim chance of their remaining in situ after the infection of the last operation, and the work of the four previous operations would have been lost.

The patient showed himself on July 26th, four months and a half after the first implantation of bone. The implanted bone was firm, showed no signs of reabsorption or elimination. All of the scars had remained closed.

### INTESTINAL INDIGESTION IN ADULTS.\*

By E. SCHMOLL, M. D., and WALTER C. ALVAREZ, M. D., San Francisco.

For many years now, physiologists have been pointing out that the most powerful and varied ferments are those poured into the small intestine; that its absorbing surface is the largest part of the tract, and that intestinal digestion and absorption must be, if anything, more important than that which takes place in the stomach. When we remember, however, how slowly advances in the cognate sciences make their impress upon general medicine, it is not so surprising that we have to search carefully even in our latest books for any mention of intestinal digestion and its disturbances. There is no such heading amongst the able articles of Albutt and Rolleston's system, and but two pages in Osler's system. Instead, we have a bewildering multiplicity of names for very much the same train of symptoms, while the varying classification and the hazy indications for treatment only show our ignorance.

The first question that arises is, in what cases are we to suspect the presence of intestinal indigestion? Probably in no other situation have we more need for remembering what Plato has said of medicine, "This is an art which considers the constitution of the patient."

It is generally accepted now that the proper function of most of the abdominal organs depends largely on the maintenance of abdominal equilibrium. Also, that the position of an organ is not maintained by the delicate folds of peritoneum called ligaments, but depends upon the tone of the

abdominal muscles, the integrity of the pelvic floor and the relative size of the abdominal cavity and its contents. We were not surprised, therefore, when we found that the most marked instances of defective intestinal function are usually associated with mucous colitis, constipation, etc., in people who have more or less enteroptosis.

Granting, then, that we must always suspect intestinal indigestion in the enteroptotic, when must we suspect the presence of enteroptosis? If we still held the views of Glénard, we would look for his disease only in women who have borne many children, or who have had some sudden change in abdominal pressure; but Stiller has shown us that there is an underlying basis for enteroptosis, a congenital predisposition which can be recognized in the "Habitus Enteroptoticus seu Paralyticus."

Thus we must be on the lookout for a woman, or frequently enough a man, with a small frame, poorly developed muscles and a long, flat thorax, which has a very narrow epigastric angle. The diagnosis in severe cases is made even before the patient undresses. On standing, the lower abdomen is protuberant and the upper part is flat and retracted. On lying down, the organs fall back into their places and may be palpated perfectly through the thin, lax wall. Under these conditions it is very easy to demonstrate that the colon, stomach, liver and kidneys are below their normal positions. Succussion sounds are easily obtained in the atonic stomach, and the greater curvature may often be mapped out in this way. Atony and ptosis of the stomach will be found in all typical cases of the disease, but we cannot emphasize too strongly the fact that this is but a part of the general picture and any attempt to deal with it as an entity will result in failure.

The great etiologic importance of enteroptosis is beautifully shown in the cases where there has been a rapid loss of weight from some cause or other—often in women who have been reduced too rapidly, or in people who have gone through some debilitating illness. The rapid change in abdominal pressure brings out a latent enteroptosis which disturbs digestion and leads to further loss of weight. We would emphasize the fact that the vicious circle thus formed can be broken only by forced feeding.

The history of digestive disturbance generally goes back a long way to childhood, or possibly to the time of mental stress at college. Rarely can anything definite be ascertained as to the particular foods that disagree. Some patients avoid starches and a few have learned to leave bulky vegetables alone. There is rarely any nausea or vomiting, only a sense of fullness after meals and an annoying consciousness of digestion. There is no definite localized pain such as we expect to find in gastric or duodenal ulcer; the discomfort does not come at any definite time after eating, nor is it relieved by the taking of a little warm food.

There may often be some vague, poorly defined abdominal pain, and when mucous colitis is marked, careful inquiry will often reveal a history of occasional acute attacks of very severe pain. Such at-

\* Read at the Forty-first Annual Meeting, State Medical Society, Santa Barbara, April, 1911.

tacks quite frequently lead to the removal of a normal appendix.

Flatulence is generally a cardinal symptom and this often leads to circulatory symptoms which may greatly alarm the patient. In fact, a large proportion of our cases have been referred to us for heart disease, when all that was needed was the correction of intestinal indigestion and the disembarassment of the diaphragm. Another cause for the impaired circulation so generally found in these cases is the imperfect action of the diaphragm in its lowered position. Although the fact is not generally recognized, the diaphragm is one of the most valuable adjuncts of the circulation. Under normal conditions it descends on inspiration, and while producing a negative pressure in the thorax, at the same time it expels blood from the abdominal cavity by squeezing the great veins against the tonic resistance of the abdominal walls. In enteroptosis, the diaphragm drops as low as its mediastinal connections will permit so that during inspiration, it can descend only a little way before it is carried up by the movement of the thorax as a whole.

At times these people will digest quite well, but when much fatigued their functions may be almost paralyzed. In fact, they are so susceptible to fatigue and its sequelae that Stiller's book is entitled, "The Asthenic Diathesis."

In spite of the poor digestion which leaves a bulky irritant residue in the colon, constipation is generally obstinate. This must be due largely to the prolapsed and atonic condition of the colon, which, again, is but a part of the whole picture.

Foremost among the means of judging of the efficiency of intestinal digestion must always be the examination of the stools, but, owing to the idea that it is a difficult and laborious procedure which must be preceded by the giving of a test diet, it has not come into general use. By eliminating the test diet, which we have found to be neither necessary nor desirable, and by simplifying the method of examination, we are able to use this procedure in all cases where there is a suspicion of digestive disturbance and have found it an invaluable aid in diagnosis, and especially in the adapting of diets to individuals. In fact, the information so easily gained in this way has proven to be so much more useful than that obtained by gastric analysis, that now we employ the latter procedure only when there are definite signs of gastric involvement.

Although intestinal digestion is generally affected more or less as a whole, different types may be recognized, according as we find starch, cellulose, or meat, preponderating in the excreta.

No discussion of intestinal indigestion would be complete without a few words on mucous colitis. This common condition, which has received very little attention in this country, is very closely related to enteroptosis, intestinal indigestion and constipation. Our experience has been that they nearly always go hand in hand. In many cases, indigestion seems to be secondary to a very severe mucous colitis and in others the colitis seems unimportant and often remains quiescent, but they react one upon the other and are both dependent upon the en-

teroptosis. We see this in men especially who may have the indigestion without enteroptosis. Such cases have no mucus in their stools. This complication is more or less responsible for the tender, thickened colon, the vague abdominal pain, the acute attacks resembling appendicitis, the flatulence, and the bran-bread diet that these people are generally taking to add to their misery.

The bran-bread, etc., are taken with the idea that the constipation is due solely to an over-hungry colon and that it can be cured by increasing the bulk of the feces with some indigestible substance, such as woody cellulose. Our studies have shown that just the reverse is true and that these people have the greatest difficulty in handling the cellulose in their diet. The great importance of cellulose lies, not in its food value, but in the fact that all vegetable foodstuffs are in little capsules which must be dissolved or burst before the contents are available. If the capsules remain intact, this food is either lost, or it is carried past the place where it is normally digested to be fermented later on by bacteria with the formation of substances irritant to the mucous membrane. It has also been shown that the addition of cellulose to a diet lowers the amount of proteid and starch which would otherwise be absorbed. From all of which it follows that these people should be given a concentrated diet of high caloric value which will tax their weakened powers of digestion as little as possible and leave no bulky residue to irritate the hypersensitive colon. Such a diet must be controlled frequently by the stool examination, and the symptoms, such as flatulence, auto-intoxication, etc., and the relative amounts of starch, meats and fats adjusted to the individual. All vegetables and starches should be cooked very thoroughly, and those, such as beans and peas, which have resistant capsules should be passed through a sieve and puréed.

Contrary to expectation, this diet rarely aggravates constipation and sometimes it even improves matters by relieving spasm due to bulky, irritant masses. It is well, however, to have the patient eat plenty of stewed fruit without skins or seeds.

Stool examination seems to show that the diseased intestine is absolutely unable to deal with poorly chewed food, and many an indigestion can be cured by securing better conditions in the mouth.

Nothing will help the severer enteroptotic cases more than fattening. In such cases we generally give a diet containing 3000 to 5000 calories and a large amount of fat, mainly in the form of cream and butter. It is surprising how little difficulty is met with in giving so much food if it is properly prepared. There is generally some repulsion and disturbance for the first three or four days, but we have not as yet found a case where the diet had to be given up, or where it failed to produce the desired gain in weight. During the first few days the patient should be in bed, as the sagging intestines do their work very much better when they have fallen back into place. This treatment can be carried out best in a hospital, especially for the first week, when the patient must learn how to eat. A woman who has been living on tea and toast is more



than skeptical as to her ability to digest the prescribed diet. Once convinced, she can return to her home with a written list and there keep up the new-formed habits.

The importance of a well-fitted abdominal support is now becoming widely known. The essential point is that the lower abdomen must be lifted up and the upper part must be entirely free. The average well-constructed straight-front corset corresponds pretty well to the needs of these cases. We have seen a number of cases, especially in the clinics, where no corset could be worn until a lacerated perineum was restored to function. There had to be a foundation on which to build.

The practice many surgeons have of "fixing" one or two of the prolapsed organs cannot be too strongly condemned, because it is irrational and does not take into account the condition as a whole. We all know the type of woman who has had her kidneys suspended; she is generally scarred from many operations, each one of which has left her more neurasthenic, and her kidneys are still floating. These remarks apply particularly to the palpable kidneys so frequently found, where there is no danger of Dietl's crises or any such complication. The dependence of these individual poses upon the general condition is well shown by the fact that a good corset is more efficient in holding up a floating kidney than the best pad made.

At the same time, the abdominal muscles must be developed by Swedish movements and massage. The patient must learn to sit up in bed from ten to fifty times without the aid of the hands.

The primary asthenia must be kept in mind and these patients must learn to conserve their strength and avoid excessive fatigue in any form. Under the circumstances the prognosis for complete recovery is not good, because the tendency to trouble remains and these people must always be careful, but wonderful relief can generally be obtained through attention to the foregoing principles.

We all see such cases every day, and after a man's attention has been called to these things he wonders how he could have missed them before. These people rarely suffer acutely, and the men particularly may never appeal to their physicians; but nothing can compensate them for the loss of that sense of efficiency and well-being which is one of the main joys of life.

Hope will be held out to them only as we learn to recognize the status enteroptoticus in all its manifestations, and, passing by the apparently isolated disturbances, direct our attention to guarding and strengthening of the vulnerable points in a congenitally weak body.

## INTESTINAL INDIGESTION FROM A SURGICAL POINT OF VIEW.\*

By RAE SMITH, M. D., Los Angeles.

The subject of intestinal indigestion from a surgical point of view is an extremely elastic one and with its necessary diversions, is entirely too broad to be covered in one short paper. It has been neces-

sary for me first to decide upon an angle of approach and next to decide what must be sacrificed to time limit. I have therefore confined myself to some of the abnormalities of the intestinal tract below the stomach, which medicine alone has failed to cure, and which seem to be coming more and more into the field of surgery.

There are many pathologic conditions in the intestinal tract necessitating surgery, manifested by widely varying symptoms, from the pylorospasm caused by muscular contraction of an obstructed gall bladder or constricted appendix to spasm of the anal sphincter caused by tumor or foreign body; which, however, do not fall within the scope of this discussion. Gall bladder disease may, however, be an important factor in true intestinal indigestion by its frequent association with, and causation of, chronic morbid processes in the pancreas.

Chronic pancreatitis is a very frequent complication of cholelithiasis, especially if the stones be situated in the common duct, and the function of the gland is interfered with, as is also the passage of the pancreatic juice to the duodenum by the inflammation of the head of the pancreas. The common duct in most patients lies imbedded in the pancreatic head for about one-third its length, where it unites with the main pancreatic duct (duct of Wirsung) in the ampulla of Vater. Stone lodged in this outer one-third of the common bile duct will not only cause obstruction of the main pancreatic duct by inflammation and subsequent contraction, but if it be situated at the junction in the ampulla, a direct mechanical obstruction to the flow of pancreatic secretion may also be present. The surgical indication here is removal of the irritating foreign body and the establishment of free drainage of both biliary and pancreatic passages. The ordinary procedure of removing all stones from the common duct, the subsequent passing of a large flexible probe into the duodenum to dilate the constricted lower end, and drainage of both the duct and the gall bladder will effect a symptomatic cure of the pancreatitis.

If, however, the gall bladder and common duct be found to be dilated without stone, permanent instead of temporary drainage must be established for the biliary passages. This is best secured by cholecystenterostomy, implanting the gall bladder in the intestine as high as is mechanically possible, either by mobilizing the duodenum or by bringing over the jejunum as high as possible without kink.

Cholecystectomy should by no means be performed in the presence of pancreatitis, unless the gall bladder be carcinomatous, as the only means of subsequent drainage of the biliary passages will then have been removed.

Realization of the frequent association of gall bladder and pancreatic disease has offered to me the explanation of some early failures to effect a permanent symptomatic cure with simple gall bladder drainage. Had cholecystenterostomy been done instead of cholecystostomy, the drainage would have been permanent and the cure as well. I refer to the cases with the symptom complex of cholecystitis with intestinal indigestion which present at opera-

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tion a gall bladder distended with black, tarry bile and a hard nodular pancreatic head. The gall bladder disease is in this case secondary to the pancreatitis, and if the gall bladder be drained, the bile in a few days becomes clear and is free from microbic contamination and the symptoms of the patient are entirely relieved. However, after the gall bladder fistula has been allowed to close, the symptoms recur and in a few months the patient's condition is the same or worse than before the operation. Pancreatitis having developed, the bile which is normally harmless seems to act as an irritant and increase the pancreatic inflammation, which in turn slows the stream in the bile passages and increases the cholecystitis. At any rate, permanent biliary drainage through the gall bladder into the intestine allows the inflammation in both pancreas and gall bladder to subside, and a cure results where the simple temporary drainage failed.

Chronic partial obstruction of the small intestines, from cicatricial contractions from ulceration, bands and adhesions resulting from peritonitis, local or general, and incarceration in hernias with kinking, may all call for surgical intervention.

Each case must be dealt with according to the conditions presented and the treatment will vary from resection with end to end anastomosis to the simple division of a band or straightening a kink by returning the contents of a hernial sac to the abdomen, always bearing in mind that the gut should be left freely movable and its lumen should not be unduly narrowed. The mobility is the important factor, however, as the fluid state of the small bowel contents allows of a good deal of narrowing without obstruction.

While the symptoms of indigestion of a chronically diseased appendix are usually gastric, still a diseased appendix contributes in many ways to the symptom complex that goes to make the picture of an inflammation, an irritation or an obstruction of the colon,—namely the symptoms dependent upon chronic constipation. The causes of chronic constipation are many and difficult to eradicate; the results are even more numerous and more difficult to bring to a successful termination. The aforesaid appendix may cause colitis by extension of the inflammation of its mucous lining, by the constant emptying of pus into the cecum, or by bands and adhesions it may so bind the caput coli and ascending colon as to cause a stagnation in the fecal stream and so bring about chronic constipation with its resultant colitis from mechanical irritation of the mucous lining of the colon. The end result of this condition may be anything, from a spontaneous cure by absorption and stretching of the adhesions (the offending appendix having been removed) to ulceration, contraction and complete obstruction of the large bowel.

Adhesions not only fix the bowel, but in many instances by their contraction so pull upon some part of it, that a kink results, causing a partial obstruction with its associated constipation and inflammation of the colon. The treatment of this condition must be operative to remove the initial cause of the slowed current and later medical and hy-

gienic to restore the tone to a dilated and inactive large bowel. We meet a difficulty here, however, when the secondary colitis has developed, for then even though the original cause be removed, the catarrhal inflammation of the colon will remain, unless treated thoroughly and persistently. This condition seems to me analogous to that common condition which we have learned to handle rationally and intelligently. A uterus retroflexed or retroverted so that drainage has been interfered with, will develop catarrhal endometritis. That uterus might have been replaced in the early days of its misfortunes without further procedure and a perfect cure result, but after its lining has been damaged, it must be thoroughly renovated within, and start fresh when it is replaced, or our surgical efforts have been only half successful. And as the leucorrhea persists after a simple suspension of the uterus, so the mucous colitis persists after the bands or kinks have been removed.

Thorough lavage of the colon is indicated and the colon tube in many cases proves ineffectual, and here surgery is developing a simple and safe method of through and through drainage to overcome the mechanical difficulties of washing the colon from the lower end. Heretofore appendicostomy has only been used for extreme cases of colitis, usually amebic, and late in the disease, and has been asked to perform the impossible, but like all surgical operations, its real usefulness is earlier in the disease when the patient still has strength enough to recover should the opportunity be offered. Appendicostomy is exceedingly simple and without risk to life. It forms a satisfactory and safe method of enabling the whole colon to be irrigated with any desired solution and at the same time does not leave the patient with any offensive and leaking opening. In performing the operation, and especially in closing the wound, the importance of preserving the blood-supply of the appendix should be borne in mind, as the bad results of this operation have been due in many instances to sloughing of the appendix which is sure to follow interference with its blood supply.

General visceroptosis is a condition which is particularly prone to cause colitis. The transverse colon sags, the fecal current is slowed, and an accumulation occurs at its lowest point; this in turn tends to carry the whole organ lower, and chronic constipation is the inevitable result. Many operations have been performed for the cure of these conditions, some of which are sound though most of them have failed. Resection of the whole colon or prolapsed part with anastomosis of the ileum with the sigmoid cures the colitis and prevents recurrence, but is a prolonged and serious operation which should only be considered in the most extreme cases and after milder measures have failed. Stitching the colon back in place, shortening the gastric hepatic ligaments and all other sewing operations on the supports of the prolapsed colon itself have not been successful except in isolated cases. In visceroptosis the abdominal walls are weak and the muscles have wasted, or the recti have become unduly separated, the result being a general abdominal hernia.



In these cases repair of the recti and restoration of the intra-abdominal pressure will allow the organs to resume their functions and effect symptomatic cure. Normally the intra-abdominal pressure is sufficient to counteract the effects of gravity in the standing position and the pressure on any abdominal organ is practically equal in all directions, so that slight anchoring supports which are provided by the various peritoneal connections are sufficient to retain the various organs in their correct relative positions. When, however, the abdominal walls become lax from any cause, the intra-abdominal pressure is lowered, with the result that organs in the upper part of the abdominal cavity are supported only by their peritoneal connections, which being inadequate soon yield, allowing the organs to prolapse. (Mummery.) In that large number of cases in which the muscles are weak but not separated and the condition does not seem to warrant an operation as serious as a resection of the whole transverse colon, an abdominal binder, to restore intra-abdominal pressure, will, to my mind, be of more service than any of the lesser surgical operations designed to support the prolapsed organs, which may in turn increase the cause of the difficulty by rendering an already atrophied wall still weaker.

Adhesions causing partial or complete occlusion of the bowel, matting together of its coils or fixation of one or more coils, may give rise to almost any chain of abdominal symptoms depending upon the location and the degree of occlusion or fixation they occasion. Laparotomy has been blamed for all abdominal symptoms that may develop ever after its performance, and undoubtedly simple abdominal sections have been followed by troublesome adhesions. However, with modern technic the question of subsequent adhesions may be left entirely out of the consideration of post-operative complications in all cases in which there is not already developed peritonitis either local or general. Adhesions following clean abdominal sections are due to one of five causes:

- 1st. Infection.
- 2nd. Trauma.
- 3rd. Blood left in the peritoneal cavity.
- 4th. Uncovered stumps and raw surfaces.
- 5th. Post-operative position of patients.

All of these are preventable in most instances.

Infection, of course, should not occur unless some pre-existing infection is present, in which case we would not consider the case clean. Traumatism of the peritoneal covering of viscera by the fingers, instruments, retractors or even gauze packs will cause peritoneal irritation and adhesions at those places where abrasions have occurred; a change of position of the patient on the table, and more care in using of retractors and packs will usually obviate the difficulty. Carelessness in allowing blood to flow from the walls into the abdomen and carelessness in removing inevitable blood in the peritoneal cavity, is very prone to be followed by post-operative adhesions. All blood left in the abdomen must first clot and then be absorbed, in the absence of infection; and in the process of absorption there is sufficient fibrin to cause any two surfaces to adhere that may

come in contact with the clot. In the same manner, uncovered stumps will become adherent to anything that may lie against them, and we may have any condition result, from a slight kinking of the intestines to complete obstruction.

Again, an ounce of prevention is worth a pound of cure, and a little more time on the table and a little more care in covering all stumps and raw surfaces with peritoneum will prevent the development of a condition which may or may not be serious.

The post-operative position is to my mind most important and perhaps most neglected by good surgeons. Patients should be allowed to turn from side to side and to sit up from the time they wake from the anesthetic, and not remain flat on their backs for several days, keeping the intestines quiet in the fossa of the back, so that if any blood be left they can become firmly adherent to each other. This is in most cases a matter of incision and sewing up; if each abdominal incision is treated like a hernia and served with the same care as a hernia, the patient runs no risk of a weak wall from change of position, especially if it has been possible to use a muscle splitting incision. We keep patients prone too long and because we are all inclined to hurry in finishing our operations and getting the patient off the table. A few minutes on the table and an abdomen free from adhesions is to my mind far preferable to an operative speed record.

Surgery has advanced past the time when the result was considered good if the patient lived. It is good now only if the patient is well, and patients care very little whether their abdominal pain is due to a chronic appendix or a post-operative adhesion, and they complain, if anything, more of the post-operative conditions than they do of the original ones.

#### Discussion.

Dr. Dudley Fulton, Los Angeles: I am glad to see this subject discussed, as in my opinion it is one of great importance. I have believed for the last three or four years that the next field of delight for the surgeon was to be the colon, and it seems that the work of Lane and some other English workers has authorized the importance of the colon as a disease-producing factor. Speaking of intestinal indigestion, I think that the majority of the dyspepsias that come to one's office are of intestinal origin. I am sure that I see ten intestinal dyspepsias to one of gastric origin. In analyzing the factors that produce intestinal indigestion, it seems to me that stasis is, from the practical standpoint, the most important, just as in gastric disturbances. We know that so long as the motor powers of the stomach are normal but few symptoms occur from disturbances of secretion, and I think the same is true in the intestinal group. In fact we know very little about intestinal indigestion, and even the use of the Schmidt diet gives but little of practical value. As in stomach conditions, so long as there is normal peristalsis there are but few symptoms from intestinal indigestion. A gastropsis produces no symptoms in the functions of the stomach unless it interferes with the outlet of food, and I have noticed that the patients with marked disturbance of the intestinal tube nearly always have associated with it constipation or ptosis. In patients suffering from flatulence or intestinal indigestion, if you produce normal peristalsis, the symptoms improve. To cure intestinal indigestion I think that it will be proven in the future that the surgeon must be called in a good deal more frequently than he has been in the

past. Many of the dyspepsias of the intestinal type are intimately due to mechanical factors and can only be cured if the mechanical factors are removed. That involves, of course, the restoration of the abdominal organs to their normal position and the removal of adhesions and the correction of the intra-abdominal pressure. The subject is one of great importance and I do not believe that the profession up to this time has appreciated the frequency and the underlying factors of intestinal dyspepsia.

Dr. W. F. Cheney, San Francisco: I would like particularly to call attention to the point that intestinal indigestion is not an entity—it is simply a group of symptoms usually secondary to some other trouble, and that in treating intestinal indigestion symptomatically, giving drugs, we are not doing any good at all; that in order to do good we must study out carefully what is causing the symptoms. Intestinal indigestion is very largely a patient-made diagnosis. It is a physician's duty to find out where the trouble lies. In the first place, as with the stomach, the source of the indigestion may be entirely outside of the intestine. We all know how frequently a disturbance of the digestion occurs in association with heart disease, with kidney or uremic manifestations. How frequently the trouble is in the liver, due to faulty secretion of the liver, or in the pancreas. All of these conditions give rise to symptoms in the intestinal tract while really the disease lies somewhere else. The question still remains, what is the nature of the trouble even if it is in the intestine? To assume that it is a functional disturbance entirely apart from anatomical changes is often a mistake. We do have an associated pathology in the intestine. There is a large group of cases of enteritis of the moderate type, a moderate degree of inflammation such as proven by stool examination. Frequently the gall bladder and appendix give rise to intestinal digestive symptoms and they will not disappear under any plan of diet or therapy until the appendix is removed or the gall bladder drained. These cases of the appendix do not belong to the frank, sharp attacks, but to low grade, chronic, catarrhal type such as the buried appendix. Then there is the frequency with which a colon affection is the source of indigestion—a sagging of the colon—which can be demonstrated by an X-ray picture of the colon filled with bismuth—a condition otherwise not to be made out. Or a colitis may be the cause of the mucous type of indigestion. An enteroptosis is also another mechanical change and the anatomical picture is very important in intestinal indigestion. Finally there is the presence of parasites—for instance, the discovering of ameba in the stools. The patient comes with a history for months of having had so-called indigestion. The same thing is true with the tapeworm, not so often. We treat the indigestion for a time until finally we or the patient discovers a portion or segments of the tapeworm. In children the presence of ascarides is a well-known cause for intestinal indigestion. The symptoms are all those of indigestion. Nothing does any good until a scientific investigation of the stool discovers the presence of ova. All these conditions are of great importance in the treatment. With regard to the condition of the stomach, I take issue with Dr. Fulton about the relative importance of gastric conditions. I have found more cases where the stomach was at fault. A stomach with hypo-acidity gives rise to a form of intestinal indigestion where the stools show undigested proteids. With hyper-acidity we find a form of intestinal indigestion where the stools show undigested carbohydrates. With regard to treatment, there is the correction of the gastric condition first and after that the intestinal condition subsides. I do agree with Dr. Fulton that the motor power is of a great deal of importance; just as when the stomach has an entire absence of secretion, in achylia gastrica, there are no symptoms until the motor power fails, when we get most severe suffer-

ing. Stool examination is very important. But the whole body must be gone over systematically, the heart, kidneys, abdomen, as well as the stomach and the stool examination. In the examination of the stools we have the key to a great deal of the difficulty as to the determination of the real fault—proteid, carbohydrates or fats. And we have also the determination of some other points—the mucus, pus, blood, parasites or ova. It is only by most careful, systematic investigation that any good can be done. The greatest mistake is to give therapy without knowing what the real trouble is.

Dr. P. K. Brown, San Francisco: I think an exceedingly important point has been covered in the emphasis he placed upon the fact that we cannot get good work out of the intestinal tract if you start the food on its way improperly. If you begin the food properly divided in the mouth and save the motor power of the stomach, the so-called intestinal indigestion will be relieved. If food is retained in the stomach longer than it should be it is no fault of the intestine. The presence in the stools of undigested particles of food is no evidence that they have done any harm in the course of their passage through the intestinal tract. The presence of food that has been too long a time in the tract will do damage and may be considered responsible for certain symptoms, but because cellulose is found in the stool, to attach any importance to it as the cause of intestinal indigestion, is absurd. One has only to regard the condition of food in animals that live on a diet rich in cellulose to realize that in digestion cellulose has no effect upon the condition of the intestinal tract of the animal. I have seen a good many of these stool examinations, but I have failed utterly ever to have found a case where cellulose was found in quantity in the stool where I believed it had anything to do with the symptoms, except where cellulose as well as other products were retained in the tract longer than they ought to be. The decomposition of fats cause about as disturbing symptoms—also the decomposition of proteids—in quite as marked a way. The importance of Dr. Fulton's reference to the correction of mechanical factors, needs to be emphasized. Too many times we treat symptoms without going into the possibilities that may be present in the way of interference with the motor power of both the stomach and intestinal tract. If food is retained in the stomach longer than it ought to be it is bound to throw work on the mechanical conditions of the intestinal tract which is not prepared to carry this out. The fact that simple relief of adhesions has in many cases cured these conditions, is a common experience we must not allow ourselves to overlook. In that sense I do believe in the close relations between physician and surgeon.

Dr. F. M. Pottenger, Los Angeles: Did you ever think how impossible it is to have proper respiration, circulation or digestion, or an evenly balanced nervous system without a normal functioning diaphragm?

Regardless of the importance of the diaphragm I have not seen a single article discussing its action and its relation to these important systems, in our American literature. We hear much about visceroptosis but we only hear one side of it. The causes of visceroptosis, as usually given are of abdominal origin. There are as many causes above the diaphragm as below. We can not have an inflammation in either the lungs or pleura without having a disturbance in the function of the diaphragm. You may not necessarily have a visceroptosis but you have a disturbance which interferes with its proper action and produces some of the same symptoms. One of the early symptoms of tuberculosis of the apex, as shown by Williams, is interference in the motion of the diaphragm. Emphysema, empyema, pleurisy, as well as infiltrations in the lung all cause disturbance in the action of the diaphragm, consequently we may have many



disturbances on the part of the abdominal organs produced by disease above the diaphragm. Williams' phenomenon has been explained by De La Camp as being due to the phrenic nerves being bound down by adhesion at the pulmonary apex. Hofbauer and Holzknecht have suggested that it is caused by a decreased elasticity in that portion of the lung which is involved and a relaxation of the remaining tissue, thus causing a general lessening of the contractile power of the lung as a whole. My recent studies convince me that the phenomenon is of reflex origin. The phrenic nerve is given off from the 3rd and 4th or 4th and 5th cervical roots. This is the portion of the cord which received the impulse from the lungs through the sympathetic nerves; and the limited motion of the diaphragm is accounted for in the same manner as the contraction of the neck and chest muscles as previously described by me, viz: a reflex stimulation, the impulse traveling from the inflamed lung through the sympathetic nerve to the cord, there stimulating the adjacent cells in the same segment of the cord and causing impulses to be sent out through the fibres of the motor nerve or nerves arising in the same segment, to the muscles which cause them to assume a state of tonic contraction.

As a result of disease in the lung we have both a high position of the diaphragm where there is a severe destruction of lung tissue occurring and a low position of the diaphragm where emphysema develops. Following a marked general emphysema the diaphragm is pushed low and the abdominal organs with it, sometimes producing a very marked state of visceroptosis. It is necessary in dealing with visceroptosis to inquire carefully what is occurring above the diaphragm. The symptoms resulting from this disturbed action and displacement of the diaphragm are just the same as those which occur as a result of visceroptosis of abdominal origin. The patient usually tires easily, has more or less rapid pulse especially on exertion, sometimes feels dizzy and usually appears anemic. The anemic appearance of the tuberculous patient has long been recognized. Its true explanation, however, has not been given. It would seem to me that probably the venous congestion and relative arterial anemia, due to interference with the action of the diaphragm, might be a very important factor.

Dr. D'Arcy Power, San Francisco: Every discussion we have on this subject shows how much we are interested in it, how little we are agreed, and most of all how little we know. It is an excellent thing to follow accurate clinical methods as recommended by Dr. Porter and much is gained if knowing the digestive limits we can diet accordingly; but what is much more important is to find means of knowing why these limits exist that the underlying disability may be removed. The physiologist has not yet sufficiently cleared up the chemistry of the intestinal tract, and until he collaborates with the clinician he is not likely to do so. What is the chemistry of idiosyncracies? Why do onions poison me and strawberries my neighbor? There can be no rational progress until we have more physiologic knowledge.

Dr. T. W. Huntington, San Francisco: Very many wise and unwise things are being said about intestinal indigestion. Many and various opinions have been expressed upon this subject and so far as I am concerned, the term intestinal indigestion "gets on my nerves." The time seems to have passed when we should talk about nervous headache and many other conditions which are merely symptoms, and I see no reason why intestinal indigestion should not be included in this category. Intestinal indigestion is to be regarded in a general way as symptomatic with a definite cause back of it; that is as voicing some condition which is clearly a pathological entity which underlies the disturbance under consideration. If we look carefully into the individual case, we shall almost universally find a lesion or lesions which underlie the faults in digestion and

which do not proceed from so-called intestinal indigestion. It happens, not infrequently, that a diseased appendix, obscure in itself, which attracts no definite attention to itself, because of its influence in inhibiting the peristaltic wave, thereby interrupting the bowel current, gives rise to an intestinal disturbance which treated never so well, will persist until the cause is removed. In my experience, it has happened several times that children of capable physicians have suffered from so-called intestinal indigestion for years, but the real cause was discovered by an acute attack of appendicitis. The same holds true in the case of individuals who suffer from post-operative bowel adhesions or adhesions from previous inflammatory causes. In a word, in my opinion, every case of intestinal indigestion should be subjected to the most careful scrutiny to the end that obstructive lesions may be discovered and, if possible, corrected.

Dr. Fitch C. E. Mattison, Pasadena: Dr. Pottenger wants to claim that everything above the diaphragm controls the organs below. This is very natural for Dr. Pottenger to think, as we are all prone to lean towards our specialty. The insurgents seem to have full sway to-day. Very little has been said as to the effect of vaso-motor insufficiency, but great attention has been paid to this by some of the newer cults and "isms." We hear a great deal about mechanical therapeutics at the present day, and the regular profession have been paying too little attention to the effects of the vaso-motor nerve. We must sooner or later recognize the fact that there is a great deal in mechanical therapeutics. For centuries massage and the manipulation of the body has been looked upon as one of the most remedial agencies, and we find that in enteroptosis and gastropoptosis, massage and properly fitting corsets stimulate the circulation of the vaso-motor nerve, and I believe the matter of mechanical therapeutics of the spinal nerve is worthy of scientific investigation. Mechanical therapeutics has been taken up very largely in the past, outside of the medical profession, and I believe they are getting good results among some of their patients who require that line of treatment. If there is anything wrong about this system, it is the application of mechanical therapeutics, in cases where it is not indicated. To my mind, the time has come when the medical profession should investigate the scientific application of mechanical therapeutics in the cure of disease. It certainly is about time for us to open our eyes and find out whether there is anything in it, and the sooner we do it, the sooner this class of treatment will be put upon a scientific basis.

Dr. E. C. Fleischner, San Francisco: I am exceedingly sorry that Dr. Porter is not here to close the discussion of his paper for two reasons. In the first place because I feel that he could discuss it with very much more acumen than I, and in the second place because it would have given me the privilege of having discussed the subject from the floor rather than as the reader of the paper. The presentation of a general subject of this sort has a very decided disadvantage. Limited by time, one is forced to present only certain phases of the problem in question. In his enthusiasm over that portion of the work in which he is particularly interested, in order to impress his ideas upon his hearers, the writer lays special stress upon certain elements of the subject. In the discussion that follows, those of you whose ideas are somewhat different, to offset what you think would be over enthusiasm, take the opposite view and the pendulum is swung so completely to the other side that the effect is practically always to lose track of the particular point that the writer has been trying to make. I know that Dr. Porter in writing this paper realized perfectly well that there were cases in which mechanical causes were responsible for the symptoms, but his object in presenting the paper was to call atten-

tion to the importance of stool examination in cases of indigestion in infants and young children.

I grant what Dr. Power has to say that there may be some underlying condition responsible for these forms of fat and starch indigestion, but unfortunately, at the present time we have no method of determining the function of the pancreas except by an examination of the stools. Granting that we are about to remove the symptoms in cases excreting large quantities of free fat and free starch in the stools, by removing these articles of diet from the food we are justified in assuming that the excess of fat and starch is responsible for the symptoms. The cases that have been presented are ample justification that it is possible to cure many of these patients without making an incision into the abdomen. One thing I want to impress particularly upon you, and that is, given a child with intestinal symptoms by a very simple method of examining the stools the cause of the trouble can often be found and after its removal the patient will be cured.

Dr. W. C. Alvarez, San Francisco: Some interesting physiologic work has recently been done which bears on this subject. Dogs in which 50—70% of the small intestine had been excised held their weight on a carbohydrate diet which they digested perfectly. Their proteid digestion was practically normal but fats were almost entirely rejected. After excluding the pancreatic juice from the intestine by means of fistulae, dogs were able to digest at least one-half of their usual ration of meat, carbohydrate and fat. The highly efficient compensatory mechanism revealed by these studies should make us more careful in saying that certain intestinal indigestions originate in the stomach or pancreas. As to the relation between the appendix and mucous colitis, I think we see far more cases where a normal appendix is sacrificed to a mistaken diagnosis than where colitis is due to chronic appendicitis. All operations have a bad psychic effect on these people and we should use such measures only when strongly indicated. They improve for awhile but unless they fatten up and get stronger they always relapse. In reply to the doubts of Dr. Brown, I will say that practically all the evidence at our disposal points to the fact that not only is cellulose difficult of digestion per se, but it interferes markedly with the assimilation of other food-stuffs. Routine stool examinations will soon convince anyone of the importance of cellulose indigestion. Again in closing we would emphasize the need for treating these patients as a whole. Recognize the predisposition, which cannot be removed entirely; examine the patient thoroughly to see what factors predominate in that particular case, and above all, avoid the narrow view that picks out an appendix, a ptotic stomach or a palpable kidney as the root of all evil and the only point for therapeutic attack.

#### REPORT OF A CASE OF CARCINOMA OF THE EYELID.

BY HUGO A. KIEFER, M. D., Los Angeles.

The patient, C. T. C., male, age 50 years, presented himself January 11, 1910, with an "ulceration" of the left lower eyelid which he had been unable to heal by the application of numerous salves and washes that had been prescribed for it.

The condition commenced a year and a half previously as a "little, sore swelling with pus in it," on the skin surface over the tarsal plate, which he squeezed out, and after that it always remained open and would crust over and have a little secretion at all times. In spite of treatment it kept growing in all directions, and at the time he consulted me it involved the middle two-fourths of the lid for 15 m. m., extending from the conjunctiva downwards over the lid margin and skin surface for 8 m. m.

The lid presented the condition of ectropion, its margin in the affected area was entirely eaten away.

eyelashes all gone, and the whole ulcerated surface was covered with a thin, brown crust, through which a slight amount of lymph-like secretion exuded. No swelling of the glands was to be found anywhere, but the lower palpebral conjunctiva was considerably swollen throughout the extent of the lid, especially toward the outer canthus.

The previous history apparently had no bearing on the case. The patient said he had "granulated lids" when a youth, and they became cured by the copper fumes with which he came constantly in contact while working in a mine. No history of malignant growths of any kind in the family. A microscopic examination of the exudate for tubercle bacilli proved negative. The diagnosis rested between carcinoma and chalazion.

Operation under a general anesthetic, January 14th. Upon removal of the crust there presented a bluish-red, soft, granular mass, bleeding freely to the touch, and covered with a scant, thin, sanious pus. The ulceration had extended over the lid margin and just invaded the conjunctiva. The margins of the ulcer were well marked, slightly thickened, fairly regular and smooth, and not undermined. A few atrophic fibres represented the remains of the orbicularis muscle; but the tarsal plate seemed to be unaffected. This entire diseased area was removed with knife, scissors and curette, including about 4 m. m. of skin and conjunctiva in all directions beyond the line of demarcation. At the outer canthus, the conjunctiva presented a marked swelling about 5 by 10 m. m., but this was left untouched. After curetting, the entire denuded area was swabbed with a three per cent. chlorid of zinc solution, and a dry, boric acid dressing applied. After the first day it was dressed daily with an ointment of zinc sulphate one grain and boric acid fifteen grains to the ounce of vaseline. Healing progressed rapidly, and on January 29th the patient was discharged, the entire affected area being epithelialized, and all infiltrations and thickening beyond the line of operation having disappeared.

Two specimens were taken at the time of the operation, each including some of the ulcerated tissue and some of the healthy tissue beyond, and submitted to Dr. Stanley P. Black, who reported them to be carcinoma.

December 21st, 1910, the patient returned. The entire field that had been operated on January 14th, 1910, presented a perfectly healthy appearance, with no scarring, and only such deformity as was due to a destruction of the lid margin and loss of the lashes before the operation, and a slight ectropion. But 2 m. m. beyond the periphery of the operated area, toward the external canthus, there was a prominent swelling 4 m. m. in diameter, involving the skin and conjunctival surface of the lower lid. The growth was slightly redder than the surrounding tissue, granular in appearance, contained rather large capillary vessels, was covered with smooth conjunctiva and skin, free from pain, and had not yet shown any signs of ulceration. Its first appearance dated back to about November 21st, 1910. No signs of any glandular enlargements were found.

December 28th, 1910, the patient was given a general anesthetic, and the tumor was removed by the knife, including 2 m. m. of skin and conjunctiva in what was apparently healthy tissue beyond it. The raw surface was cauterized with a 10 per cent. silver nitrate. Thereafter nothing but plain boric acid solution was used in the dressing.

Healing was very prompt, and to the present time there have been no further recurrences.

The terms skin-cancer, epithelioma and rodent-ulcer are usually indifferently applied to carcinoma of the eyelids, though some authorities do try to differentiate between epithelioma and rodent-ulcer. For the sake of comparison I have placed the clinical manifestations as described by different authors



in parallel columns. This comparison does not represent any attempt on the part of the writer himself to differentiate between the two, but is only an expression of the opinion of others.

#### Epithelioma.

Usually arises from mucocutaneous junctions.  
First appears as a wart, a fissure, or a nodule.

When ulcerated the edges are undetermined.

Some claim that the neighboring lymphatics are always involved sooner or later, others that they are seldom involved.

Early tendency to involve only superficial structures.

Slight burning, itching or stabbing pain early in disease, and severe pain later.

Appears after age of 40 years.

Progress slow.

Death by exhaustion or hemorrhage.

#### Rodent Ulcer.

Usually arises from the skin surface.

First appears as a dark nodule with a depressed center.

When ulcerated the edges are undetermined.

Does not involve lymphatics.

Early tendency to invade the deeper structures.

Very little pain.

Appears after age of 40 years.

Progress slow.

Death by exhaustion, or by destruction of deep structures.

There are some points in common that practically all observers are agreed on, viz., that carcinoma of the eyelid is a disease that appears after middle life; it commences usually at the lid margin or on the skin surface near the margin, and occasionally on the mucous surface near the lid margin; enlarged lymphatic glands, especially pre-auricular, are sometimes found; the condition, which consists of epithelial processes and nests, with small round-cell infiltration in and about the growth, may remain quiescent for years, or its destructive tendencies may be manifest almost from the beginning; metastasis is apt to occur; the etiology is not known. It may be confused with chancre, with molluscum contagiosum, with lupus, or with a broken down chalazion. Chancre need not long remain in doubt if one watches for other manifestations of syphilis and uses the therapeutic tests. Lupus occurs more commonly in childhood; it leaves decided scarring, and is very apt to be found in other localities. Molluscum usually presents greater elevation, has a smooth surface, is more acute in its course, and is often multiple. Chalazion usually breaks through the mucous surface of the lid, while carcinoma more often attacks the skin surface.

The treatment is quite varied. While at the present time resort is probably most often had to the knife and curette, and the X-ray, very good results have been obtained with caustics, such as nitric or chromic acid, saturated solution of chloracetic acid, saturated solution of chlorate of potash, or the actual cautery. In using chemical caustics, one should protect the field outside of the area to be acted on, by the application of vaseline, and after the desired amount of cauterization has been attained the drug should be neutralized or washed away. Repeated cauterizations are usually necessary. For very small carcinomata the X-ray probably affords the nicest method of treatment, though it is not always successful, and resort has to be had to other methods. It should be applied for five or ten minutes, two or three times a week, the light being passed through an aperture in a sheet of lead protective. The use of radium bromide, applied by fastening a tube of the material over the growth for a few minutes at a time every week or two,

has also been reported on quite favorably. For large growths, no doubt, excision and curettement, followed by caustics or the actual cautery, or by the X-ray, will prove the most efficient.

### DERMATITIS VENENATA FROM PROPRIETARY HAIR DYE.

By ERNEST DWIGHT CHIPMAN, M. D., San Francisco.

The frequent occurrence of a certain form of dermatitis having special characteristics and due to the use of a proprietary hair dye seems to call for further comment even though similar cases have been previously reported.

The fact that within a few months the writer has met with six cases of severe dermatitis of more or less extensive distribution, the reaction in each instance following the use of "Mrs. Potter's Walnut Tint Hair Stain," leads to the belief that this particular nostrum is especially noxious and that the relation between its employment and subsequent inflammations of the skin often passes unnoticed.

In cases previously reported this dermatitis is spoken of as resulting from the use of "Mrs. Potter's Walnut Juice Hair Stain." This slight difference in nomenclature is mentioned as indicating only approximate designation on the part of earlier reporters or, what is more likely, a change in the name of the hair dye "for trade reasons." At any rate, "Mrs. Potter's Walnut Juice Hair Stain" was found by the North Dakota Agricultural Experiment Station to depend "for its action on paraphenylenediamin, a substance which when oxidized by means of a solution of hydrogen dioxid becomes an intense black."<sup>1</sup>

The "Mrs. Potter's Walnut Tint Hair Stain" which has preceded the dermatitis in our cases has been apparently of this nature for it comes in two bottles, one of which appears to be hydrogen dioxid. The results of its employment also correspond very closely with the accounts of poisoning by paraphenylenediamin published by Mewborn in 1901.<sup>2</sup>

One primary difficulty in the diagnosis of dermatitis from hair dye is the fact that the patient volunteers no information concerning the use of such a substance. In the nature of things it is more or less a secret. Aside from this the reaction often occurs several days or even weeks, after the last application of the dye and the patient does not suspect the dye to be the exciting cause of the trouble.

The chemical process, as stated by Mewborn, involves the production of quinone,  $C_6H_4O_2$  by the union of a solution of the hydrochlorate of paraphenylenediamin with oxygenated water. This gives off very irritating vapors at ordinary temperatures. Mechanically the spread of the irritating substance is facilitated by the common custom of women combing their hair forward and downward over the face.

Special factors are possibly first, the existence of an idiosyncrasy for the substance—the behavior and spread of the inflammation resembles somewhat the dermatitis from poison oak—and second, the character of the soil, as it were, upon which it develops. In our most recent case, the eruption showed marked predilection for those portions of the face which seborrhea preferentially affects.

Clinically the eruption begins as an erythema varying doubtless with the resistance of the skin as well as the strength and frequency of the application. Following the erythema, an edema of the skin is observed, and later a desquamation which is proportionate to the intensity of the original erythema.

The outbreak may be diffuse from the beginning or it may originate in discrete patches which later coalesce. There is a definite tendency to spread and the inflammation starting on the face and forehead may extend downward over neck, shoulders, arms and chest.

Objectively the process often has a mildly inflammatory or subacute appearance which is remarkably out of proportion to the subjective symptoms. The patients invariably complain bitterly of burning, itching and a feeling of extreme tension in the skin. In some instances the scalp is only slightly, if at all, involved, which is not particularly to be wondered at as that region is much more tolerant than other parts.

Concerning the spread of the dermatitis, it must be remembered that the direct irritant is a vapor and as already suggested, this vapor is easily communicated directly from the hair to the face, neck, shoulders and adjacent parts. Whether or not this explanation suffices in those cases of more widespread distribution is a question. It is possible that the quinone, the substance from which the irritating vapors emanate, is itself transferred from the hair to the neighboring parts by the hands, clothing, etc., as in the case of poison ivy and similar poisonous plants. Such transference seems much more plausible than the explanation on such grounds as nervous erythism or absorption suggested by Mewborn.

There is apparently little tendency to spontaneous cure, the reason for which lies in the fact that the poisonous vapors are given off gradually and persistently from the hair.

Complications of various nature may supervene, a fact which is illustrated by the occurrence in one of our cases of a carbuncle which for a time, made the case one involving a question of life and death.

The diagnosis of this particular form of dermatitis is naturally easy when the history is complete. In any form of dermatitis careful search for the particular irritant is presupposed.

In the writer's experience no one sign is so significant as the great disparity between the objective signs and the subjective symptoms. All of the six cases referred to here occurred in middle aged or elderly women. A glimpse at the scalp often reveals the fact that the hairs for a fraction of an inch at the proximal ends are of a different tint from the remaining portions. In the early stages the possible mistake is erythematous eczema, in which case the foregoing facts are sufficient for a differentiation. Severe forms may bear a slight resemblance to erysipelas, but marked constitutional disturbances are wanting. In some cases, owing to the distribution over scalp and face, seborrheic dermatitis is suggested. The latter rarely gives rise to such severe subjective symptoms.

Any dermatitis of the scalp and face, especially in middle aged women, should excite suspicion and

call for scrutiny of the scalp as well as careful enquiry concerning the use of hair dyes.

The treatment is first of all to discontinue the use of the hair dye. Next in order is the removal of what irritating substance remains on the hair by thorough washings. In doing this we have found it useful to advise careful protection of the inflamed skin by a protective paste during the process. Externally the calamin and zinc lotion, while giving great relief, takes second place to applications of Lassar's paste containing one to two per cent. of phenol. The protection afforded by such a paste seems to fulfill the paramount indication. Internally a saline at the outset and bromides as indicated are the remedies most often of service.

It would be interesting to learn of some substance chemically antagonistic to quinone.

#### References.

- (1)—Editorial, *Journal A. M. A.*, Sept. 4, 1909.
- (2)—Mewborn, *Journal A. M. A.*, May 18, 1901.

#### REPORT OF A CASE OF PERFORATED DUODENAL ULCER, OPERATED UPON 55 HOURS AFTER PERFORATION, COMPLICATED BY DOUBLE PLEURO-PNEUMONIA.\*

By L. W. ALLEN, M. D., San Francisco.

The history of this case which was referred to me by Dr. Torello was as follows: Miss G., age 21, well nourished, but somewhat anemic.

Family history. Negative as to its relation to the present illness.

Previous history. Usual diseases of childhood. Stomach trouble for the past year. Has had pain in stomach after almost every meal—not immediately—usually one-half to one hour after. No pain before meals. For past month or two has had pain like intercostal neuralgia around both sides of the chest, low down, and through to the back; intermittent and at times very distressing. No vomiting, or eructations. Appetite always good. Never noticed her stools.

Present illness. Began Jan. 12, 1910, at 4 p. m. with severe pain in the abdomen and a fainting spell. Patient was put to bed. Pulse rapid. Temperature normal. Pain in the abdomen persisted and was not relieved by opiates. Jan. 13th, pain still severe, but complained more of it in cervical region of the back. Mustard leaves applied with no relief. Abdomen not distended. Pulse rapid but temperature normal. Jan. 14th, the patient was seen in the morning and the pain being still unrelieved another injection of morphin was given. In the afternoon the abdomen had become distended, the patient's general condition was observed to be much worse and a consultation was called. When seen at 9:30 p. m. the abdomen was greatly distended and tympanitic; liver dullness obliterated; muscles rigid and tender. Respirations short and rapid—facies anxious. Pulse, 140, small but regular. Temp., 100°. A diagnosis of perforated duodenal ulcer was made and the patient sent to St. Luke's Hospital, arriving there at 11 p. m. Ether anesthesia was given immediately. Incision made slightly to the right of median line below free border of ribs. On opening the peritoneum large amount of gas escaped followed by serous and then by purulent fluid. The least possible investigation was done as the patient was in extremis. Superficial search was made for the perforation, but only a yellow fibrinous exudate was seen about the duodenum and to this point a rubber drainage tube and a gauze wick drain were carried. Another gauze wick drain was inserted along the outer side of the duodenum down into the

\* Read before the San Francisco County Medical Society, May, 1910.



cul-de-sac below the liver. A counter opening was made above the pubis, followed by the escape of a large amount of purulent fluid. Rubber tubing and gauze wick drains were also inserted here. No irrigation. No sponging. The angles of the wounds were drawn together with through and through silk worm gut sutures. The entire operation occupied but ten or fifteen minutes. Subcutaneous salt infusion was given during the operation.

The patient was placed in Fowler's position and proctolysis by the Murphy method begun immediately. The patient recovered rapidly from the anesthetic.

Jan. 15. Patient's general condition improved. Pain had disappeared. Pulse, 130-140. Temp., 98° to 100°. Resp., 36-44. Drainage profuse. Leukocyte count, 20,000.

Jan. 16. Drainage subsiding; pulse good, 126-130. Respirations labored, 32-38; face cyanotic. Friction rub over right lower side. Subcrepitant rales over left base. Oxygen begun. Quinin, grs. 45, given by rectum. Nutritive enemata started. Cracked ice by mouth allowed. Bowels moved voluntarily.

Jan. 17. Patient's general condition improved; cyanosis disappeared. Respirations easier; pulse good. Abdominal distention only moderate. Drainage tubes removed as profuse discharge had ceased. Leukocyte count, 14,000.

Jan. 18. Food in form of panopepton first given. Pulse dropped to 104; resp., 32; temp., 99°-101°.

Jan. 20. Patient became more restless. Coughed considerably. Abdomen more distended. Pulse increased to 116; resp., 32; temp. to 102°. Oxygen inhalations and caffeine hypodermically.

Jan. 21. Examination of patient's heart and lungs by Dr. H. P. Hill showed consolidation of both bases with small amount of fluid in lower part of pleural cavities. Heart enlarged and loud systolic murmur over apex. Sputum revealed diplococci in abundance. Abdominal condition doing well except slight tenderness and rigidity noticed to outer side of both recti opposite umbilicus.

Jan. 24. Patient's general condition seemed better, but dullness to percussion over the tender areas in abdomen became apparent. Lung signs remained about the same although the embarrassment in breathing was improved while taking oxygen.

Jan. 28. General condition seemed weaker. Pulse, 96-102. Resp., 30-36. Temp., 100-102. Complaining of pain in right side of abdomen. Area of dullness and tenderness in both sides of abdomen increasing. Leukocyte count, 16,500.

Jan. 30. Examination of chest showed both lungs consolidated at base with a flat note on right side to angle of scapula. Heart enlarged and a loud systolic murmur heard at apex. Right pleura aspirated, a few ounces of cloudy fluid removed. The examination of this fluid was as follows: sero-fibrinous tinged with blood; sp. gr.—1010; neutral to litmus. albumen 20%. Microscopically, many w. b. c. and r. b. c., polys—80, small 12, large 8. Gram's stain, occasional Gram's and diplococci—no other bacterium seen. Diagnosis—Inflammatory exudate—bacteria, Fraenkel's pneumococcus.

The abdominal condition revealed the presence of two circumscribed abscesses and the necessity of draining them. The patient was taken to the operating room, given a spinal injection of tropococain and the two large abscesses incised and drained—the one on the right side drained in the lumbar region as well as anteriorly. Smears from this pus showed pneumococci predominating in a mixed infection. Cultures gave pure pneumococci.

From this time on the patient's general condition decidedly improved although the temperature still occasionally ran up to 102°. Her heart retracted in size, the apical murmur diminished, the pulse remained between 90 and 110. The lungs cleared but slowly, with evidence of fluid on the right side when she left the hospital. The secondary abscesses closed rapidly, the drainage tubes being early re-

moved. She left the hospital on the 36th day. The duodenal condition has apparently been entirely relieved as she had no return of the former distress. Dr. Torello reports that shortly after leaving the hospital she had a recrudescence of her pneumonic infection with a typical drop in temperature at the end of a week.

In considering the fortunate outcome of this case, stress should be laid upon the importance of only doing what is absolutely necessary to relieve the immediate dangers to the patient and doing it as quickly and with as little trauma as possible. These cases of duodenal ulcers, perforating as they do in more or less confined space, need only direct drainage to the outside. Too much manipulation in searching for and attempting to close a perforation, will usually cause the loss of a patient. In a series of 38 cases recently published where the advice was given to suture the perforation, not one case was saved, operated upon at a longer time after perforation than 16 hours.

The purpose of reporting this interesting case is to draw attention to the fact, generally overlooked by writers upon this subject, that simple drainage to the point of rupture is all that is necessary for a permanent cure; that breaking away adhesions to see and suture the perforation may add just enough shock to change a favorable to an unfavorable termination.

#### Discussion.

Dr. Dudley Tait: I have listened very attentively to the reading of Dr. Allen's paper and fail to see the point which prompted its presentation. Surely it cannot be the question of diagnosis, either clinical or anatomical, for nothing worthy of being called a clinical history was given, and it is explicitly stated that no special attempt was made to locate the presumed perforation. In this regard the finding of "some lymph on the posterior wall of the duodenum" seems rather remarkable. Could the object be to emphasize the use of gauze for the drainage of the peritoneal cavity, a mistake sometimes made even at this late date? Surely the writer's purpose was not to preach the doctrine of operative conservatism in acute diffuse infections of the peritoneal cavity, for no sane surgeon would dream of advocating radical surgery, i. e., opening up of new avenues of infection and multiplying the element of shock in such an extensive acute peritoneal suppuration as the one reported by Dr. Allen.

If the object of the paper relates to the mode of anesthesia, I must confess that the picture of the administration of ether to a septic patient in extremis for an abdominal section, and the subsequent subjection of this patient to spinal anesthesia merely to drain two abscesses causes me to shudder.

In closing the discussion I hope Dr. Allen will speak further on the exploration of the posterior wall of the duodenum, and tell us more of the advantages of the rectal route for the administration of quinin in the treatment of general infections.

Dr. E. N. Torello: One thing which impressed me was the great resistance of this patient and I think that the general practitioners should learn a lesson from cases of this character as so little attention is paid to stomach troubles. Less doctoring with pepsins and other remedies for the usual complaints and keener observations of stomach troubles would perhaps result in less perforated duodenal ulcers.

Dr. L. S. Mace: In view of the fact that secondary infections by the pneumococcus so frequently follow pneumonia of the lungs I think that the supposition that this was probably a pneumococcus peritonitis should be considered. Statistics show that operation and drainage result in a cure in secondary pneumococcus peritonitis in about 80%, whereas unoperated they all die.

Dr. G. K. Herzog: In connection with the bac-

teriological side of the case presented by Dr. Allen I wish to mention a case six weeks ago which I diagnosed as a perforated appendix and advised operation, which was done at the German Hospital. A culture was made of the pus and showed a pure culture of pneumococcus. There was a local abscess which was drained and within three weeks it closed. At the end of two weeks, following a slight rise of temperature and pain in the rectum, a localized abscess was found at the anus. Examination showed that this was a pneumococcus infection, both times the cultures were examined by Dr. Ophuls.

Dr. A. Miles Taylor: I would like to say one word with regard to drainage. I believe that Dr. Allen said that he made a counter opening above the pubis and put in a drain. Would it not have been better if he had made the drainage through the posterior cul-de-sac and drained in that way? I have had one or two cases where in opening up the duodenum and making drainage I found it better to drain in that manner.

Dr. Allen in closing: There can be no doubt in the mind of any unprejudiced person, who has listened carefully to the subjective and objective clinical findings in this case, as to the correctness of the diagnosis; the character of the stomach trouble, the obliteration of the liver dullness, the escape of gas on opening the abdomen, etc. The purpose of the paper, as stated above, is to insist on not allowing an over enthusiastic scientific spirit for completing a diagnosis by hunting for a perforation in the duodenum when the patient is in extremis. I believe the pneumococci were present here as a correlative agent, not a causative one.

### THE MODERN MILK FEEDING STATION FOR INFANTS; CLINICAL RESULTS.\*

By P. V. K. JOHNSON, M. D. and PHILIP S. CHANCELLOR, M. D.

Hundreds and thousands of infants die each year and thousands could have been saved if they had received proper care and food. One-fifth of all the deaths in the United States are infants under one year old. The rate is excessive, unnecessary and preventable.

The modern milk station is one of the great movements helping to reduce infant mortality.

Many large cities abroad and in this country now have well organized systems of milk stations which supply pure fresh milk to the infants of the poor and needy. The two milk stations in Los Angeles, at Vignes street and at the Los Angeles Department, College of Medicine, University of California, started by Dr. Chancellor and myself, are the first in the State of California. There is also one at the Pasadena Hospital.

The methods of all are practically the same. Our aim is to encourage mothers to nurse their babies and to impress upon them the importance of nature's method of feeding. Nursing mothers who are poorly nourished and underfed receive assistance by being given extra food and this is a *sine qua non* factor in combating infant mortality.

To give those infants who need it, fresh, clean milk modified to suit each individual case.

To teach mothers the hygienic and general care of themselves and their babies, including care of their breasts, how and when to feed, care of nipples, bottles and milk. And this can only be accomplished by personal instruction and by the follow up work of the district nurse. It is useless, both

in point of time and expense incurred, to try to reach this class of people through tracts or essays. The vast majority of these do not read or reading do not understand, and still worse may wrongly interpret and badly apply written instructions. Education through such channels is worse than useless. One has to come in personal contact and teach by example. The poor learn their lessons by hearing and seeing.

This is the work that this station does. We teach the young mothers the most essential things in the care of their infants,—by personal precept and by subsequent supervision of the district nurse.

The history, physical examination, weight and milk formula of each patient is carefully recorded. After this is done the nurse makes up the formula as the physician has ordered and each case is supplied with a holder containing the necessary number of feedings for the next twenty-four hours.

The nurse, who is most essential, after making up the formulas and sterilizing the bottles for the next day, begins the follow up work. This consists of visiting the homes of the patients to see if the physician's orders are being carried out, to instruct and help the mothers and see if the baby is doing well, and to make a report of each case visited which is handed to the physician next day.

If the modification given agrees as shown by the daily report of the nurse the mother need only return the empty bottles for refilling, a record of which is kept in the milk station along with the written report of the nurse.

There is a nominal charge for the milk of two cents per nursing bottle with a maximum charge of eight cents per day. About 90% of the patients receive their milk free. The district nurse investigates the circumstances of the infant's parents and reports whether they are able to pay or not.

The infants are weighed once a week, the smaller and more delicate ones twice a week.

Sick children are not taken, being referred to the dispensaries and hospitals.

The Bethlehem Mission very generously gave us two rooms, water, gas and heat for our Vignes street station and the Medical school equipped the station at the Graves Memorial Dispensary.

Mr. Robbins, the owner of the Arden dairy, has most generously come to our aid in regard to the milk. We are using raw fresh cow's milk unpasteurized and unsterilized. This is certified milk containing  $3\frac{3}{4}$  to  $4\frac{1}{4}$  butter fat and reaches the milk station about six or seven hours after milking in capped and sealed glass bottles, iced. This milk comes from a T. B. tested herd and is under control of the Milk Commission. It is the only certified milk in Southern California and the bacterial count is less than 1000 per c.c. At present we are using over 400 quarts of this milk per month and giving out over 1800 bottles of modified milk.

Mrs. Weston, the superintendent of the district nursing work, has greatly helped the work by giving us a nurse who looks after both stations, and does the follow up work.

By good food and good care we hope to do our share in saving the little ones.

\* Read at the Forty-first Annual Meeting, State Medical Society, Santa Barbara, April, 1911.



### Discussion.

Dr. E. C. Fleischer: This subject is one of utmost importance both for its educational value to the doctor and patients and for its object in conserving infant life. Only those of you who have worked among people of the lower classes can appreciate the difficulties entailed in endeavoring to teach the ignorant methods of cleanliness. Notwithstanding the fact that we teach them to take care of the milk and keep it cool, the constant influence in their homes tends to do away with the effects we are trying to produce. I feel that Dr. Johnson and Dr. Chancellor are to be commended because they are working among a class of people in whom cleanliness is a thing apart. It requires constant effort to make the people not only follow directions but to make them enthuse over what one is trying to do.

In San Francisco we have adopted another method for conserving infant life which is much easier. All of the foundlings of San Francisco are now boarded out in families and one would be surprised to see the type of women who are willing to take these babies for \$10.00 a month.

During the last year of the existence of the San Francisco foundling asylum the mortality rate was 59 per cent., and this is no more appalling than what is frequently found in institutions of this sort. During the first year of the boarding out system, when the babies received no medical supervision and were fed all kinds of food, the mortality was reduced to 12 per cent. They were then put upon certified milk and the mortality was reduced to 8½ per cent. There were 13 deaths during the first year of this regime, 7 of which were from tuberculosis in one form or another. During the past 6 months there have been 3 deaths and not one was from tuberculosis.

I have been criticised for my enthusiasm over the effects of certified milk, but I wish to call attention to the fact that we have practically succeeded in freeing these children from tuberculosis by changing their environment and feeding them pure milk.

The whole thing is an educational problem. Dr. Johnson and Dr. Chancellor are to be congratulated upon their efforts and should receive the support of everyone who is able to give them any.

### PREVENTION OF POST OBSTETRICAL LESIONS.\*

By DAVID HADDEN, M. D., Oakland.

When one realizes the large proportion of cases of subinvolution, laceration of the cervix, injuries to the vaginal outlet, retrodisplacements and prolapse of the uterus that are found in ordinary gynecological practice, and that these are all the results of child bearing, the question naturally arises as to whether or not it is possible to prevent many of these menaces to the woman's health by more careful attention during the confinement and the puerperium. Probably 75 per cent. of the cases of gynecology that come to the general practitioner, and even to the specialist, present the aftermath of child bearing, and seldom are these pathological changes of the type that remain stationary, but instead are those that grow progressively more severe and thus in time put the woman into a condition needing not one minor operation, but a series of operations.

A large proportion of these secondary conditions are preventable and many a woman has to go to the operating table who might have been saved the ordeal had she had a little more attention at the

labor and during the three or four months following. Nor is it always the physician's fault that the patient escapes his observation too soon, for the public has not yet learned the wisdom of prevention.

A prominent general practitioner in discussing perineal repair at a society meeting made the statement that he never allowed any degree of tear to go unrepaired, for he did not intend that any woman whom he confined could be told that she needed a perineorrhaphy, and that is the feeling and practice of all conscientious obstetricians, and yet when a patient who has a relaxed vaginal outlet is told that she has to have a repair she invariably tells you that her doctor sewed her up when the baby came and also how many stitches were taken. But this only goes to show that a large percentage of repairs in recent tears result in failure and unless the attendant can recognize early the cases of failure the patient gets out of his hands with a false sense of security as to her good condition.

Lacerations of the cervix are even more frequent than perineal injuries. Some men write of physiologic lacerations of the cervix. The text book advice is to leave cervical injuries alone unless the need of controlling hemorrhage arises. The difficulty of the work, the increased risk of infection, the rapid involution of the tissues in the first days which tends to leave the stitches too slack to approximate the torn edges, and finally the fact that the majority of tears heal kindly without intervention give us the authority for this stand. However, a large number of cervical tears do not thus heal by first intention and the formation of scar tissue, with or without the turning out of the cervical mucous membrane, gives rise to the secondary symptoms. There can be no doubt that many miscarriages are due to the persisting deep clefts in the cervical tissue, even when not associated with the usual endocervicitis, which alone is enough to prevent pregnancy or favor miscarriage.

In all cases of severe laceration of the cervix, with or without bleeding, a careful repair does not add to the risk of infection if the asepsis is good, in fact, closing in the raw areas will lessen the risk of auto infection. Using a Graves' operating speculum, grasping the cervical lips with two double volsellum forceps, it is possible to readily locate the torn edges and by traction downward facilitate the introduction of the sutures. Sutures of silk worm gut or silver wire, which do not stretch or swell and leave no foreign culture medium in the tissues, are best suited to this particular need, and these should be tied not so tightly as to strangle the tissues, but tight enough to hold the parts in approximation even after the uterus has undergone its rapid preliminary involution. The results in many cases will be as perfect as a later Emmet operation.

Besides repairing the cervix, if torn, we can do much to prevent the occurrence of the injury by avoiding the too early application of forceps as well as their careless or improper use, and sometimes by manual dilatation. The tear many times occurs, not with the passage of the head, but of the shoul-

\* Read at the Forty-first Annual Meeting of the State Society, Santa Barbara, April, 1911.

ders, and of course there one can do little to prevent. Later on another factor favoring the persistence of cervical clefts will be considered.

We can do more to prevent the injuries to the perineum. Manual stretching carefully done; holding back a too rapidly advancing head during pains and encouraging delivery between as suggested by Edgar; using the forceps judiciously for the same purpose, will in many cases save the perineum by allowing a gradual dilatation. The shoulders will often produce an injury, however, that we have prevented while the head was passing. When a perineum has been torn it should always be repaired immediately unless the condition of the patient absolutely forbids, for a perineum left even a few hours does not give as good a result without great care in its correction on account of the retraction of the injured muscles involved.

Lately, due to the rather large proportion of unsatisfactory results with the use of the interrupted suture, I have been applying the continuous mattress suture of silk worm gut advocated by Dr. Geo. B. Somers of San Francisco in secondary perineorrhaphies. Using a small curved Hagedorn needle while the edges of the tear are being retracted with volsellum forceps, introducing the needle deeply in a lateral direction, one can approximate the divided perineal body and prevent the retraction of the torn musculature. While this type of suture is much harder to use in these immediate repairs than the interrupted on account of the rapid swelling of the parts and the quantity of obscuring blood, the advantages gained and the much more satisfactory results make the extra care well worth while.

The continuous suture does not constrict the circulation as does the interrupted. It approximates the perineal body throughout its entire depth and after the edema and swelling have subsided there is no slack on the sutures, or if there is it can be taken up by pressing the tissue back along the stitch. If interrupted sutures are used, we will find after the swelling has subsided that the swollen tissue in the grasp of the suture has been partially cut through and that the stitch is too loose to give a perfect approximation and so the fluids can percolate and prevent perfect primary union. Again, if by any chance infection of the perineum has occurred, the insoluble continuous suture acts as a drain and whatever swelling takes place can be accommodated on the untied sutures without any cutting through of the tissues, so that the results are good, which would be impossible if the repair had been done with either absorbable or nonabsorbable interrupted stitches.

Sometimes the rectal sphincter is injured and overlooked on account of the difficulty of thorough inspection. But that is not of such vital importance if we succeed in getting a good perineal body by primary union. It is not the severance of the sphincter muscle fiber that is of such moment, for that is often done intentionally in fistula operations without bad effect, but it is the poor perineal results with the retraction of the muscle layers and thus the lack of anterior anchorage that allows

the retraction and atrophy of the rectal sphincter. So even if there is a failure to unite the torn sphincter if we do succeed in getting a normal perineum the sphincter will not lose its function.

The usual treatment of the parturient woman has kept her firmly bandaged lying on her back. During the first twenty-four hours after confinement a snugly fitting binder with a firm pad so placed as to keep the fundus against the pubes favors the contraction of the uterus and the prevention of hemorrhage. After the danger of relaxation has passed anything but a loose binder is not only useless but may be injurious. A firm binder has little or no value in favoring the popular desire for "shape"—a muscle done up in a splint gains nothing in strength, but judicious use of the abdominal muscles is what brings back tone to the stretched anterior wall. A firm binder does harm by forcing the uterus into the pelvis and thus stretching the lower uterine supports, or if the supports are resistant it tends to evert the injured cervical lips and prevent primary union. It seems reasonable to lay the persistence of many a cervical injury to pressure thus applied, and the same applies in a lesser degree to the perineum.

The injurious effects do not stop here, however, for the pressure combined with too prolonged dorsal decubitus favors the sinking of the uterus in the pelvis and thus its retrodisplacement with a permanent elongation of the ligaments.

The keeping of the patient on her back even in extensive repairs of the perineum is by no means essential though the drag on the stitches prevents any but the prone posture during the first week. Tying together of the knees, as often practiced, is also unnecessary in repair with continuous suture. The separation of the knees after the patient has recovered from the anesthetic, if given, will never be excessive enough to injure a properly repaired perineum; the sense of soreness is alone sufficient to prevent too much separation. I can understand how the turning of the patient voluntarily may put a strain on a repaired perineum causing an interrupted suture repair to be injured by the pull of the muscle, within the ligature grasp, cutting through. With the continuous suture the grasp of the stitch extends throughout the whole muscle and the likelihood of such injury is remote, while the advantages gained by getting the patient off her back are much more vital, for thus we prevent the sagging of the pelvic structures. In women who have no perineal injuries the early use of the sitting posture so as to prevent this sagging and favor drainage is of value.

The after treatment for a perineal repair should consist of the lysol pitcher douche which is sufficient for cleanliness, and the use of sponges unless most carefully done is better avoided. The lysol solution washes away the blood and mucous and so is better than solutions of the nature of bichloride, which coagulate secretions.

Complete involution in no case takes place under six weeks, and in some women the return to normal may not be completed for several months and until involution is complete and completed with



the uterus in normal position, we in justice to our patients and ourselves, should not permit them to pass out of our care. In many cases the patient may leave her bed in practically normal condition, but a week or so later on examination we may find a retrodisplaced uterus. If this malposition is allowed to persist we soon get a beginning prolapse not only of the uterus but of the vaginal walls, with a stretching out of any new formed cervical scar or poorly repaired perineum. Gradually a rectocele and cystocele occur, and thus is laid the condition necessitating future operative work. If, however, we replace promptly such a displaced uterus and retain it in position with a pessary, in the majority of cases with the involution of the pelvic structures a permanent cure results and the vaginal fascias and a weak perineum gain surprisingly in tone, and gives us comparatively good results.

The cases of delayed involution can be greatly benefited by a well placed depleting tampon of elastic composition, not the incapsulated proprietary variety which are impossible to place to advantage, nor a tampon so large or firmly packed that it acts as a piston when it comes to withdrawal. This, combined with the long hot dorsal douche to deplete the circulation, will hasten the involution, thus avoiding the dragging of the heavy uterus on the relaxed ligaments and weakened perineal supports.

#### Discussion.

Dr. G. E. Abbott, Pasadena: We should regard lacerations of the cervix as of as much importance as those of the perineum. The obstetrician should feel his responsibility and strive to prevent them, just as much as in preventing lacerations of the perineum. For they are in great measure preventable. The patient should be cautioned not to bear down during the first stage, but to let nature do her work quietly so as to prevent rupturing the bag of waters early, and also so as not to rupture the attenuated cervix during the passage of the presenting part through it. As to lacerations of the perineum, I would like to report one case which I had not long ago, in which the lacerated perineum did not unite well. Perhaps some of you have had the stitches all slough out, as I had in this case, not because of faulty technic, but because of the condition of the patient. The stitches were removed, perineal wound cleansed of pus and sponge grafts placed on the neurotic surface. In three days the entire surface was one mass of perfectly healthful, bleeding granulations with practically no pus. Fresh stitches were introduced and complete union "by first intention" resulted. I would like to add that it is an easy matter to take almost any neurotic surface, an old ulcer of the leg, for instance, which has been discharging for months and sometimes for years, and by means of the sponge grafts in three or four days have the whole surface changed into a healthy, bleeding granulated surface, which can then be skin grafted if flat or opposed by stitches if deep and a primary union secured.

Dr. O. O. Withersbee, Los Angeles: My work has not been such in recent years as to give much experience along these lines. My observations in reference to women following the birth of children who have had no support or abdominal binder, have shown that those women lose their natural contour. I believe the muscles have been well used throughout the period of pregnancy and that a rest after it is over is not out of place, and with rest and proper support we can bring the contour of the body to the customary outline and the muscles will retract. As to the perineum, I believe that many times the

vaginal muscles are ruptured and the mucous membrane is not. I think that many of these cases are scrutinized by the physician and he decides there is no injury of the perineum, and afterward some other physician finds the vaginal wall greatly relaxed. The muscle is really ruptured and the integument is not.

Dr. D. Hadden, closing discussion: There are undoubtedly a great many cases where you will get an injury of the mucous membrane and those that the doctor should diagnose before the patient gets out of his hands. I think that a binder not too strongly applied will favor retraction of the fascia and there are those cases, too, where we have a separation of the recti muscles where the binder is very useful. Of course, the binder will not give us a good result in every case.

#### BORDER LINE CASES, OF EAR DISEASE.

P. A. JORDAN, M. D., San Jose, Cal.

The purpose of this paper is to deal with such cases of ear diseases as most often come under the care of the general practitioner. And it is hoped that some useful suggestions may be made relative to their more proper treatment, coming from one who makes a specialty of these cases. My remarks will contain no spirit of criticism but the best interests of the patient will ever be uppermost.

*Some General Considerations:* The ear, being very sensitive, should be handled with gentleness and delicacy. Its examination should be made with care. The speculum should be warmed before inserting it. If the cotton applicator is to be used, it should be wrapped well around the tip and held between the thumb and fingers so that it would slip through the fingers should the patient jerk his head, instead of through the membrana tympani.

One of the most common ailments of a special character appearing in the practice of all physicians is that of impacted cerumen. Such condition causes discomfort in the ear, ranging all the way from fullness or muffling of sound to almost total deafness, sometimes causing much pain. This may occur in children but most often in adults. It is caused by picking the ears and causing small masses of wax to fall back into the ear; by wiping out the ear with the corner of a towel rolled into a spiral, thus forcing the wax backward; by an irregular canal; or by the presence of a foreign body in the canal. As a case of the latter, I would mention a man of thirty-five years who came into my office nine years ago, complaining of partial deafness in one ear. Examination showed the external canal to be completely filled with impacted cerumen. Irrigation with warm water containing bicarbonate of soda, five per cent., in a short time removed all the wax apparently but one hard, black, dried piece in the very bottom of the external canal. More careful examination showed this to be a hard substance and on extraction with alligator forceps proved to be a black beetle lying flat against the membrana tympani, dead for many, many months. This beetle had undoubtedly brought about the conditions favoring the formation of the ceruminous plug. The pathological condition having once begun, the mass continues to grow in size.

The ceruminous glands manufacture wax and pour it out on the lining of the external canal; layer after layer is formed, each forcing the preceding layer toward the center in concentric layers, until

only a pin hole lumen remains. Until this time, the patient has remained in ignorance of this enormous mass in his ear. Now, occasion for picking the ear presents, or perchance, a drop of water closes up the lumen, and suddenly, he is deaf in the ear and greatly alarmed. He quickly seeks his physician, who, if he is skilled in the handling of such an unfortunate person, prepares plenty of warm sterile water and dissolves in the water 5% bicarbonate of soda. Gentle or somewhat forcible irrigation with such solution will, in the course of five to thirty minutes, remove almost any cerumen plug. From time to time, during the irrigation, under good illumination with speculum carefully inserted, the presenting portion of the plug may be loosened with a spud or dull probe, thus favoring the dislodgment or melting of portions of the foreign body. Should the plug be so very dry and hard as to resist careful irrigation, it may prove wise to desist further washing and put the plug to soak for twenty-four hours in the following solution: Either 20% glycerin in sterile water or 10% carbolic acid in glycerin with one dram of alcohol added to each ounce, may be instilled into this ear in ten drop doses every three or four hours. This will soften the cerumen plug and it may easily be washed out at the next sitting. Until the membrana tympani is clearly seen, until the malleus is clearly visible, perhaps reddened by trauma, until no speck of wax or other foreign substance can be found in the canal or upon the membrana tympani, until all this has been accomplished, the physician has not completed his task. And at this juncture, let me relate some experiences which have come under my observation, pertaining to cases not properly treated.

Some weeks ago, an adult male of some thirty years came into my office saying that he failed to hear clearly with his right ear; further adding that a month preceding he had visited a physician who had removed the wax from his ear but for some reason the ear was still deficient in hearing. Upon examination, I found the external canal largely filled with dry, hard, clotted blood due to trauma in the attempt at removal of the impacted cerumen some weeks before. Further than this, I could not see until after irrigation. After carefully irrigating the ear with warm sterile sodium bicarbonate solution, thus removing the desiccated blood clot, I was further able to see a considerable mass of dry impacted wax in the lower third of the canal driven hard against the membrana tympani, thus interfering with the function of the ear and causing sensations of pressure and pain. Further simple irrigation removed the remaining wax, giving the patient immediate relief and restoring his hearing to normal.

Another case is that of a girl, twelve years of age, who came under my observation four years ago, complaining of partial deafness and bringing the story of having had wax removed from her ears. Examination disclosed the fact that the lower third of the ear was still laden with the wax which presented a light gray color, due to the soaking with water. Simple continued irrigation easily removed the remaining foreign body. Many similar experiences might be mentioned.

A very common practice among physicians which I wish to absolutely condemn is that of putting oil of one form or another into the ears of patients. This is chemically incorrect and only adds to existing troubles. Not once in five hundred cases in my own practice do I deem it wise to use oil of any form in an ear. As for instilling oil for the softening of wax, there is no foundation of truth in the theory that it will soften the impacted cerumen, or if, perchance, it may soften it a little, its activity is very inferior to the use of glycerin and water for the same purpose. I would like to suggest that for all common cases, sweet oil, vaselin, olive oil and all other fats, be not used in the ear of a patient, but instead a little plain water and glycerin; and lastly, having softened and removed the wax, the entire canal should be carefully inspected; the membrana tympani should be carefully read and interpreted, and, unless this is done accurately, the best interests of the patient have not been met.

*Acute Catarrhal Otitis Media.* Inasmuch as 13% of all ear diseases are caused by acute catarrhal otitis media, we deem it wise to give this disease a few moments' consideration.

*Etiology.* The causes of this disease are numerous.

First, exciting causes, or pathogenic microorganisms. The exact relation of microorganisms to inflammation of the middle ear is not fully understood. They may be found in healthy ears. We well know that the various infectious fevers, as scarlet fever, measles and diphtheria are often accompanied by acute catarrhal otitis media, and we are all, unfortunately, too familiar with the dire results to the ears following these diseases. Among the microorganisms found causing this disease, may be mentioned, the diplococcus pneumoniae and streptococcus pyogenes; the staphylococcus pyogenes aureus and albus, and bacillus pyocyaneus.

These and other microorganisms may be found in the tympanic cavity without exciting inflammation. It is necessary that the conditions favoring inflammation should be brought about before these organisms begin their pathologic activity. Nearly always, these microorganisms gain entrance to the tympanic cavity through the Eustachian tube, though they may gain entrance by way of the blood vessels or they may gain entrance to the middle ear from perforation of the drum head by trauma.

As some of the external causes may be mentioned, exposure to weather, causing change of blood pressure; the presence of adenoids is a most common cause; chronic rhinitis, or any obstructive disease of the nasal cavity; diving and gulping down water, thus forcing some of it into one or both Eustachian tubes and thus directly driving infective material into the tympanic cavity. But, as the most common cause of all, I wish to lay especial stress upon the presence of adenoid vegetations; as almost one-third of all children have adenoids, we may readily see a good reason for such frequent ear diseases among children of tender years. Inasmuch as adenoid vegetations are almost sure to press upon the external or pharyngeal opening of the Eustachian tube,



thus forbidding ready equalization of air pressure, we can readily understand how pathological changes of the middle ear may commonly occur among children. And thus has come about the unfortunate belief among mothers, neighbors, and, sad to relate, some family physicians, that a discharging ear in a child is a matter of minor importance belonging to the ailments of childhood which the child is carefully expected to outgrow. As further nasal causes of acute catarrhal otitis media may be mentioned such inflammatory diseases as acute rhinitis, acute pharyngitis, and catarrhal and suppurative sinusitis.

The inflammatory process may reach the middle ear by continuity of structure or directly through the Eustachian tube or through the blood and lymph channels. Adenoids also influence the inflammatory changes in the middle ear by causing closure of the Eustachian tube which closes off the air in the middle ear from the external world; the oxygen in the middle ear is soon absorbed, thus causing a partial vacuum which allows tissue changes in the middle ear favoring the activity of otherwise harmless bacteria. Enlarged tonsils also favor closure of the Eustachian tubes because of their pressure against the posterior pillars. The posterior pillar embraces the palato-pharyngeus muscle, which has some influence in controlling the patency of the Eustachian tube. It is thus apparent that when the tonsil is large and diseased, the pillars are congested and their muscular fibers undergo degeneration and atrophy, and thus the function of the Eustachian tube is impaired.

*General Symptoms.* Acute catarrhal otitis media is usually due to bacterial infection gaining entrance through the Eustachian tube. The exudate may be simple or purulent. In simple catarrhal inflammation, the drum head rarely ever perforates but if the exudate is purulent, rupture generally occurs at the point of greatest bulging. Pain of varying degrees, from mild to that causing almost delirium may be present and usually progresses until the pressure from within the tympanic cavity is relieved. This relief may come from the fluid escaping through the Eustachian tube into the throat but more often the pain is relieved from rupture of the membrana tympani. The temperature of the patient may range from 99° to 103° and 104°. Prostration is in proportion to pain and height of fever, often added to by long duration of suffering before rupture occurs. Infants are prone to have acute otitis and oftentimes are treated for colic of varying types when their restlessness and crying comes from a swollen tympanic cavity.

The diagnosis of acute catarrhal otitis media may readily be made by considering the pain, temperature, deafness, partial or almost total of the patient and on inspection, finding a swollen, much reddened, inflamed, and probably bulging membrana tympani.

The treatment of this condition concerns this paper most. How often is the patient given some oily mixture with instructions to instill this into the ear every one or two hours, warmed, to be sure, the heat of which gives some comfort to the patient and from the heat alone does he derive the least benefit. Again, the patient is given laudanum to

drop into the ear, or is told to hold against the side of his head, a pack of hot salt, or again, a poultice is ordered applied to the ear and again, poor sufferer, some midwife or old lady of the neighborhood orders the heart of an onion heated and packed tight into the external canal. All these and many other foolish forms of treatment add to the long list of our cases of chronic suppurative otitis media, many complicated with mastoiditis and brain abscesses. The tympanum once inflamed, and filled with purulent material, continues to be filled tighter and tighter, each one of the millions of microorganisms multiplying its kind with wonderful rapidity. A pus factory has been instituted and it is manufacturing a great amount of material notwithstanding the fact that its room for work is limited on all sides. Being thus limited, the germs crowd into every direction following the course of least resistance, thus the membrana tympani is sent bulging outward into the external canal, the mastoid antrum is filled with pus by way of the iter ad antrum. If, perchance, the membrana tympani withstands the pressure long enough, many of the mastoid cells are crowded full of this poisonous secretion; thus pressure goes on, germs forming their kind by the millions until finally the membrana tympani, at its weakest, most bulging point, gives way, the patient at this juncture feels a sudden pang of pain, caused by the rupture of the membrana and almost as quickly, realizes a great sense of relief from the escape of serum and pus from the middle ear into the external canal. But why should the patient have suffered all these long agonizing hours, anywhere from twelve to forty-eight? A torn, ragged-edged, ruptured membrana tympani is very much harder for nature to heal than a small incision through this membrane would have been. Further, the disease having lasted long enough to rupture the membrana tympani, has extended many times farther into the recesses of the middle ear and the mastoid cells than it would have extended had the membrana tympani been incised earlier in the disease.

It is here, I wish to enter a strong plea against the delay of paracentesis in acute otitis media. If every case of acute otitis media coming under the care of a physician, at an early date, were furnished with a neatly performed paracentesis, followed by aseptic treatment, a large majority of our chronic cases with their attendant disasters would be averted. A paracentesis should be performed as early as a diagnosis of fluid pressure in the middle ear can be made. This may be made from the history of grumbling, pain, some temperature, dullness of hearing and direct inspection of the membrana tympani, which will be found of an angry red color, instead of its pearly gray normal color. The paracentesis should be made at the point of greatest bulging or in the posterior inferior quadrant, if choice may be had, thus allowing an early escape of secretion in the middle ear before the bacteria have had time to multiply their numbers and to press their way into so large a field of activity.

Thus the disease has been cut short in its extent, the opening in the membrana tympani is small, its edges are neat and even and will readily heal after the escape of all the secretion. As a cut with a

knife or scissors in a garment is more easily repaired than a large tear or perforation by thrusting some irregular object through said garment, so is the membrana tympani more easily repaired after a paracentesis than after a rupture from internal pressure.

I would not be understood to advocate the paracentesis of every inflamed membrana tympani and it may often be found advisable to use antiphlogistic measures. Where such is the case, I have often found of greatest use, the following prescription:

Carbolic acid	gr.	48
Alcohol	dram	1
Glycerin	dram	7

Of this mixture, ten to fifteen drops warmed may be instilled into the ear every three or four hours, held in place by a small plug of cotton.

Further, in chosen cases, direct inflation through the eustachian tube may give instantaneous relief, bringing about a cure without further intervention. Where paracentesis has been performed, the external meatus should be maintained in as nearly an aseptic condition as possible. Often have I been called to the bedside of a child crying with great pain from an acute otitis media. The child usually has slept little or none for twelve to twenty-four hours, is highly nervous, has a fever of  $101^{\circ}$  to  $103^{\circ}$  usually, and shows in its face the ravages of pain and lack of rest, and as often have I examined the ears and quickly done a paracentesis in the posterior inferior quadrant; usually there is a momentary sweep of added pain from the small surgical procedure and then comes a sense of relief, and often, in twenty to thirty minutes, the child has fallen asleep following the escape of a pressing secretion, and has slept many hours in sweet rest and peace.

My plea again is for early paracentesis in acute catarrhal conditions of the ear. Again, I say that were this properly done in all suitable cases, that the number of chronic suppurative ears with their malodorous discharges and with their accompaniment of unnecessary mastoiditis, and with their further complications of brain abscesses, would be largely and forever reduced.

I believe that nearly one-third of all our children have adenoid vegetations, most of these accompanied by enlarged tonsils. Adenoid growths nearly always interfere with patency of the eustachian tubes, thus causing partial deafness, and further on, with slight provocation, such as acquiring an acute inflammation of the nose or throat, very often causing acute otitis media. A large percentage of acute otitis media is caused either from negligence on the part of the parents or improper treatment often given by physicians and thus becomes chronic catarrhal otitis media. The latter disease may run on for an indefinite number of years, ranging from five to thirty years. In this diseased condition, the membrana tympani is lost, the ossicles have necrosed and disappeared, the hearing is largely defective and the discharge may become at times very offensive. The patient is subject at any moment, during these years of chronic suppuration, to acute mastoiditis, demanding immediate surgical intervention, or often his condition is made worse by the formation of a

cranial abscess. As mastoid operations sometimes end fatally and are always undesirable, and as brain abscesses are more often fatal, and as these owe their beginning almost entirely to an acute otitis media, let me again urge a very careful attention and proper surgical treatment in all cases of acute otitis media.

## THE SIGNIFICANCE AND TREATMENT OF ABDOMINAL PAIN.\*

By C. P. THOMAS, M. D., Los Angeles.

It is the purpose of this paper to briefly lay down a few rules which may enable us to make an early and reasonably clear diagnosis in intra-peritoneal troubles, before the disease is so far advanced that the proof of the diagnostic correctness must be found at post mortem.

I am convinced that many of the new and ultra-scientific methods of diagnosis, while reasonably reliable in the hands of the few, are not so in the hands of the many, and their attempted use by the latter is but little short of criminal, since the delay and unreliableness incident thereto, result in perfectly curable conditions becoming incurable. No attempt therefore will be made at this time to describe other than the more simple diagnostic methods.

Pain in the abdomen serves the same purpose to the surgeon that the buoy at anchor does to the sailor, warning him of existing danger and it should no more be removed without knowing its cause and significance than should the buoy, leaving undisturbed the danger place it marks. It might also be compared to the sound of distant thunder which of itself is free from danger but warns us of the approaching storm.

We may with safety say that all acute, serious intra-abdominal troubles begin with pain, and when the attack is primary, it will usually be referred first to the solar plexus, from which all the intra-peritoneal organs chiefly receive their nerve supply. It, however, soon locates itself in the affected region, and by careful observation of both the location and variety of the pain, we are able with reasonable certainty, in most instances, to determine its cause; and when such cause is determined early, its removal is usually comparatively easy.

It may require a little courage when called to the bedside of a patient in great pain, to sit calmly down and proceed to locate its variety and origin, instead of immediately administering a dose of morphin for its relief, but that, nevertheless, is our plain duty.

By calmly and firmly quieting the anxiety of the patient and sympathizing friends, it is far easier, then, to get an accurate history of the origin of the trouble, than later, particularly if in the meantime the senses of the patient have been benumbed by an opiate.

That pain is often forgotten, or at least in so far as pertains to its severity, may be easily demonstrated by talking to the mother of several children, who will almost invariably describe the pain of her last labor, if at all recent, as being the most severe.

\* Read at the Forty-first Annual Meeting of the State Society, Santa Barbara, April, 1911.



She will also declare during labor that she will never under any circumstances give birth to another child; but in a few years she will be found as anxious as ever to repeat that which she had so earnestly declared should never again occur.

While this may be a wise provision of Nature, and as it should be, it often prevents the surgeon obtaining a reliable history of the location and character of the pain both of this and former attacks.

The average layman describes all pain occurring between the pubes and ensiform cartilage as being in the stomach, and since, as suggested before, the solar plexus, from which all intra-peritoneal organs largely receive their nerve supply, is located just below and posterior to the stomach, we must expect the first pain of infection, or injury to any of these organs, to be first referred to that region.

Careful examination of the patient, however, even early in the attack, will nearly always show increased tenderness and rigidity over the seat of the trouble.

There are three chief sources of abdominal pain, pelvic, appendiceal and gastro-hepatic. In women the pelvic region is the most common source, but pains originating there are more or less distinct in character, and with careful history-taking and bimanual examination, we are able to discover its cause, or at least enough evidence to warrant us in advising for or against exploration, and in either event giving the proper treatment.

Pains in the pelvis are more easily located by the patient, because it receives its nerve supply chiefly from the hypogastric plexus and except in the case of ruptured tubal pregnancy, often originate and remain there, not being referred much to the stomach region. In tubal abortion the pain is nearly always first referred to the region of the stomach, but there is usually the history of one or more missed, or partially missed, menstrual periods, followed later by uterine hemorrhage and passage of membrane resembling a miscarriage. If the pregnancy is not far advanced and the tube not yet ruptured, bi-manually we will feel a well defined boggy tubal mass, with but little tenderness, and usually confined to one side only.

If rupture has taken place, there will be general abdominal distention, and a feeling of fullness, on vaginal examination, all around the uterus, which organ will be freely movable, except for the general increased intra-abdominal pressure.

These patients show acute anemia, shock and exhaustion, from which apparent recovery may take place only to be followed in a short time by another and more severe attack, finally terminating either in death or in the large so-called pelvic hematoma. We also expect to find the temperature at first either normal or sub-normal.

In inflammatory conditions of the uterine adnexa, at first we have an elevation of temperature with its characteristic septic variations, soon followed by fixation in some degree of the uterus and adnexa, with great tenderness, usually, on both sides of the uterus or in the cul-de-sac. If the attack is primary, there will be a definite causative history; such as gonorrhea, abortion, or instrumentation,

either self-inflicted, or otherwise; idiopathic pelvic peritonitis probably never occurring.

It is the writer's belief that ruptured extra-uterine pregnancy, should always be treated surgically, as soon as it is discovered, supplemented, if necessary, by immediate direct transfusion of blood. I have seen one such patient die on the table while transfusion was being done before operation, more blood escaping into the abdominal cavity than was being received. Operation should precede transfusion, and if done quickly, patients even in extremis usually recover.

The treatment of acute pelvic infection is one upon which we might write volumes. It is my belief that when pus is present better end results are obtained, fewer permanent adhesions left, less mutilation and loss of important structures result, if it is properly and early treated by abdominal section. Drainage, when used, should be through a small stab wound, well away from the incision, a loosely packed, spirally-cut rubber tube being introduced through the small incision to the depth of the pelvis. Vaginal drainage, when the abdomen is opened above, is unnecessary and unwise, intra-abdominal pressure being sufficient to empty the cavity through an abdominal wall stab wound.

The pulse rate will usually be high in both pelvic infection and ruptured tubal pregnancy, but will be much weaker when due to hemorrhage than early in sepsis.

The pain of renal colic is usually lancinating, sudden of onset, and causes localized pain in the region of the affected kidney from the start, with shooting pains down the ureter into the leg or genital organs, with no abdominal tenderness, distention or constipation; while urinary symptoms, such as bloody urine or frequency of urination, with irritation of the urinary tract, soon appear. The X-Ray, segregation, and ureteral catheterization are most valuable diagnostic adjuncts, and surgery, our most reliable recourse for treatment.

Appendicular pain is of several varieties, controlled largely by the extent and kind of infection, also by the number of attacks the patient has had. When seen early in the first attack, if it is at all severe, the pain will be referred, as above suggested, to the navel region, radiating therefrom in every direction, finally settling down into its own region after the infection has to some extent passed through the coats of the appendix and involved the parietal peritoneum, which membrane receives its nerve supply from the spinal nerves, instead of the solar plexus.

The pulse rate and temperature will be increased and after twenty-four hours, if the attack is severe, will often be intermittent. There will be abdominal distention, vomiting, tenderness on pressure, great restlessness, obstipation in over eighty per cent. of cases, and the face will have the characteristic frightened expression. There will also be increased right rectus rigidity with localized tenderness, if general peritonitis is not already present.

Sudden cessation of pain and temperature during a severe attack of appendicitis, without corresponding reduction of the heart's action, is a bad omen, and usually indicates perforation of the appendix,

and then if the inflammatory process is not circumscribed, death ensues, while the friends are expecting an early recovery.

If the patient has suffered repeated attacks, the pain and tenderness will be more or less localized in the region of the appendix from the beginning. The tendency of appendicular pains once localized, is to finally remain stationary, or radiate downward or backward; while gall-bladder and stomach pains after localizing, either remain stationary in their regions, or radiate upward towards the shoulder blades.

The writer believes in early surgical treatment of appendicitis to the exclusion of all other methods, if it can be done in a hospital with a good technic, and by a good surgeon; otherwise the Ochsner treatment, in its fullest detail, should be given.

The gastro-hepatic region is one that in recent years has attracted surgeons more than formerly, largely because with improved technic we are able to relieve and often cure diseases arising there which were only a short time ago considered incurable, or at least attempts at cure by operation were so dangerous that they were not advised.

Pain in the stomach proper is generally due to ulcer, cancer, reflex pyloric spasm, or stenosis; many such cases being diagnosed gastritis, gastralgia, etc. Hyperchlorhydria, with its characteristic symptoms, generally means gastric or duodenal ulcer, or pylorospasm from appendix, gall-bladder, or other intraperitoneal troubles.

Most patients with conditions of the stomach producing pain will try a long course of medical treatment, but a majority of them will finally have to resort to surgery for relief.

Acute obstruction of any of the ducts of the liver, produces pain, whether due to stone, stricture, mucus plug, or acute inflammation; when due to the latter, if of the ascending variety, the onset is slow and the pain is not so violent, and vomiting is a prominent symptom; if descending, it is accompanied by chills and fever, but the pain is not so lancinating in character as when due to stone.

When the obstruction is due to pressure from without, especially from malignant growth with jaundice, it is nearly always painless. Painless jaundice, except the hematogenous variety or when due to yellow atrophy of the liver, particularly if the patient has passed the age of forty, is, almost without exception, due to malignancy.

In gall-bladder colic, if the onset of pain is violent and not accompanied by fever and jaundice, especially if the disease has not existed long, the cause is generally stone, which is probably high in the cystic duct. The same rule applies to the common duct, except that we will have jaundice with chills and fever if the attack is protracted, due to the fact that the common and lower part of the cystic duct is well supplied with lymphatics, which absorb infectious materials; while the gall-bladder proper contains but few, if any, lymphatics.

When inflammatory obstruction of the duct occurs there is more local tenderness on pressure. Chills and fever are present, and the patient is much more ill than when the obstructive attack

comes from stones, unless the stone produces complete obstruction and continues long enough to cause gangrene. Continuous gall-stone colic for over twenty-four hours usually means gangrene.

The treatment of cholecystitis, with or without stones, is surgical. Thorough examination for duct stones should always be made, and ample drainage provided, for the cure of the gall-bladder and ducts, and the pancreatitis, which so often accompanies it.

The pain from gastric ulcer is usually aggravated at once by eating; but when due to duodenal ulcer it comes on from one and one-half to three hours after eating, when the stomach is discharging its contents over the ulcer; either condition may be relieved by emptying the stomach, which is not the rule in hepatic colic. Severe vomiting may, however, relieve gall-stone colic, because of the general relaxation incident thereto, releasing the stone, permitting it to fall back into the gall-bladder, or distended portion of the duct.

Blood in connection with stomach symptoms is not a sure sign for or against either stomach or duodenal ulcer; but when seen in the vomitus, is more an indication of stomach ulcer. When it is passed by the bowel alone, it points to duodenal ulcer. Hemotomesis, however, may be present when the ulcer is below the pyloric ring. Numerous cases of ulcer, even with resulting pyloric stricture, have no definite history of bleeding. It is my belief, formed upon close observation of numerous cases, that chronic gall-bladder disease, by disturbing normal stomach secretions, tends to cause gastric ulcers.

When pressure from tumor or malignancy causes obstruction of any of the hollow viscera, there will usually be felt on palpation a well defined mass, and in such cases, the onset is usually more gradual. Many of these cases may be relieved and even cured by early surgery.

Dr. Henry Herbert, of Los Angeles, reports, that in a number of cases of rheumatic polyarthritis he has found pain in the tendon attachments of the abdominal muscles to the ilium, Poupart's ligament and pubes, also epigastric pain due to rheumatic arthritis of the costo-sternal junction on either side. This pain may simulate intra-peritoneal troubles, but the tenderness in such will be more marked at the aponeurotic attachment of the muscles, than in their centers. A careful history-taking of the cases of abdominal pain when first seen, will usually bring out a definite line of symptoms, from which we may with reasonable certainty conclude that the pain is due either to mechanical or inflammatory obstruction of some of the hollow viscera, and with further searching and by a process of elimination, we can reach the conclusion as to which one is obstructed, whether complete or partial, and outline the proper treatment of the same. If the obstruction is mechanical and below the pylorus in the alimentary canal the stethoscope is of valuable assistance in diagnosis.

The belching, water-brashed, sour-stomached cases, which continue for long periods, and have large splashy stomachs, are not usually due primarily to ulcers or their sequence, although ulcer may develop later, but instead are usually due to



pylorospasm from gall-stones, appendicitis, or some other intra-abdominal trouble. The proper treatment of such cases is to first remove the cause by operation then follow with proper dieting and medicine. Operations on the stomach proper, except for removing an ulcer or hour-glass contraction, have but little value unless the pylorus or duodenum is actually or nearly closed, and a simple retention test meal will permit us to confirm or disprove the diagnosis of stenosis.

While gastrojejunostomy is no longer a difficult procedure and is one of the best surgical operations we have, it is seldom indicated except for stenosis, and when done for relief of stomach symptoms of a neurasthenic, the neurasthenia is usually increased instead of benefited. The same rule applies to Finney's operation.

I do not believe the new opening ever closes, as we so often hear, in a well-done gastrojejunostomy, simply because the pylorus is patulous, having disproved this theory many times; but, inasmuch as the symptoms complained of were not due to obstruction and retention, no relief is obtained.

The writer believes that many chronic sour-stomached belchers are due to colitis, and curable by appendicostomy with proper after treatment.

I do not pretend to say that these are the only causes of abdominal pain, for we must not forget diverticulitis, intussusception, volvulus, internal hernia, tubercular peritonitis, intestinal malignancy, pressure or twisted pedicle of cystic or fibroid tumors, strangulation of the bowel by or through adhesions, mesenteric arterial thrombosis, peritonitis from external and internal traumatism, etc.

It has been said recently by one of our leading gynecologists that the uterine curette is the source of more trouble than any other instrument found in the physician's armamentarium. I am inclined to think, however, he should have given that place to the hypodermic syringe with its seductive, quarter-grain morphin tablets. It is so easy to hurriedly administer the "knock-out drops," and rush on to the next patient, to be called again two hours later to re-administer the soothing balm, thus postponing the time for accurate diagnosis and operative treatment until it is too late.

The story then ends by the call of the surgeon who because of such practices is more or less justly feared, and who, in his extreme anxiety hurriedly operates, trying often in vain to save the spark of life which has so nearly vanished; or the patient is permitted to die unoperated because the disease is not diagnosed early enough to warrant the surgeon's attempting the cure. I fear also that the patient's friends are often informed by the attending physician that he had exhausted every resource for the cure of the patient short of surgery; adding, as an excuse that the patient was really at the time first seen by him, too weak to undergo an operation. It seems to be quite forgotten by physicians who do not frequent operating rooms, that in the hands of a rapid, skilful operation, with proper surroundings, no great amount of vitality is required to undergo even quite severe operations.

The rapidity with which such patients thus operated regain their strength is little short of marvel-

ous. Therefore, he who assumes the mighty role of judge, jury, and executioner in such cases is taking upon himself responsibilities far too great for one man.

I have not attempted to describe in detail the treatment of abdominal pain, it being sufficient at present to say that most of the conditions described herein belong to surgery, and the earlier this is recognized by the entire profession, the sooner will the whole community, including the medical profession, profit thereby. In conclusion then I will add that early diagnosis, and quick but thorough surgery, are the chief factors to be relied upon to relieve the diseases of the peritoneal cavity which have pain for their chief symptom.

#### Discussion.

Dr. E. O. Witherbee, Los Angeles: A paper of this nature must necessarily deal not only with treatment but with etiology, pathology, symptomology and diagnosis of pain. Dr. Thomas has touched upon all briefly but to a small extent. When he touches upon treatment he must, in a measure at least, deal with technic, and there is where the shoe pinches. The different kinds of pain necessarily have to deal more with diagnosis. The patient knows that we understand something about the treatment, the question with him is diagnosis. The different varieties of pain depend in a great measure upon the peculiarity of the patient. We hear of the dragging pain, bearing down, nagging pains, etc., but that is a matter that goes with the patient's judgment as to how he feels himself. It may be an acute pain, it may be a dull pain, or it may be a referred pain. The books tell us a great deal about referred pains. The referred pain seems to me one that the patient himself is unable to locate, simply because the impulse is transferred by a nerve that is not as yet educated to a sufficient extent to enable him to locate the origin of the trouble. He says the pain is in the belly above the umbilicus. The patient has never before heard of the appendix or the McBurney point. If you press on the McBurney point you educate that patient as to where the pain is, and every time he has appendicitis afterward he knows just where the pain is. A patient with femoral hernia came into the hospital with no pain at the McBurney point, but there was a gangrenous appendix in the sac that had to be opened; the pain had been felt above the umbilicus. This is a question of education and as soon as the patient is educated he understands where this referred pain is. If the foot goes to sleep he cannot tell where his foot is, but if he looks down he will see it and then he knows where it is and can feel it in that position.

Dr. T. W. Huntington, San Francisco: This is a subject always of the greatest interest. I rise to call attention to one of the important points which presents itself to the physician when confronted by a patient suffering from more or less protracted discomfort and loss of vitality associated with many concomitant symptoms.

A very important distinction should be made between the terms pain and tenderness. In the recognition of these two manifestations, there is presented a very fine distinction, the one may be regarded as subjective and the other objective.

Pain is apt to be intermittent and of varying intensity. Tenderness is usually constant and may be depended upon largely to determine the location of the initial focus of disease. In this view of the subject, persistent tenderness is of the greater importance so far as throwing light upon the exact diagnosis; for example, in intrinsic intestinal carcinoma, during its early history, tenderness is often one of the earliest suggestions, and if carefully studied will lead to a final solution of the problem.

This distinction between pain and tenderness is

too often overlooked, with the result that the physician gropes indefinitely.

Dr. T. C. Edwards, Salinas: About ten or twelve years ago I noticed an article in the *Journal of Obstetrics and Gynecology*, April, 1899, title Pain in Gynecology, which said that frequently when making an abdominal examination, if you cannot make out any definite trouble, if you will gently pick up a fold of skin and pinch it, if the patient flinches, sometimes making a short cry, you are dealing with a neurasthenic. I have often found this to be the case and it will help you to eliminate certain inflammatory conditions.

Dr. W. I. Terry, San Francisco: There is one phase of abdominal pain which was only briefly referred to and that is abdominal pain due to pneumonia, particularly with a focus contiguous to the diaphragm. It has been my fortune in a number of instances to have met with such cases. The first case I recall was some ten years ago, where I operated upon a patient who had a severe pain located in the region of the appendix and pain nowhere else. Physical examination was negative so far as we could determine. The appendix was uninvolved, and the following twenty-four hours the patient developed a typical pneumonia, which explained the pain, and the patient died of pneumonia. Since then I have seen a number of other patients where the diagnosis could be made. There was one patient some six years ago where the diagnosis had been made of abscess of the liver and we were able to discover the true cause, that of pneumonia close down to the diaphragm. I have seen others referred to the appendix region. The last one was a young man who presented all the symptoms of appendicitis. Examination of the lungs was negative. We operated on him and found a normal appendix. That man did not develop his pneumonia until over forty-eight hours had elapsed; despite the fact that I was on guard I could not help making the error.

### THE EARLY DIAGNOSIS AND THE PROPHYLAXIS OF THE TOXEMIA OF PREGNANCY.\*

By TITIAN COFFEY, M. D., Los Angeles.

The purpose of this paper is twofold. First: To show that the toxemia of pregnancy can be recognized early and before the appearance of albumin in the urine. Second: To show that by proper prophylactic treatment the toxemia may disappear in the large majority of cases, and that the true eclamptic seizure denoting a severe degree of toxemia may be prevented.

The early recognition of a beginning toxemia, or of an already existing toxemia of a mild form, depends to a great degree upon a careful and systematic examination of the urine. This is particularly important in a certain number of cases in which the clinical symptoms are obscure or in which they are very slight. In regard to this latter point we must note those cases in which nausea, constipation and slight headache are present. Very frequently these are considered by the general practitioner signs which are rarely called pathologic in the pregnant woman. Yet these few mild symptoms show that a tendency to toxemia exists and in these cases the abnormal urinary findings should receive very careful attention. For this reason the results of the urinalyses in this series have been gone into at some length and have been carefully

analyzed. This report gives the findings in 344 urinalyses covering 53 cases of pregnancy. This, it is admitted, is a small number from which to draw conclusions, but the results obtained so far seemed quite interesting and it is hoped that this report may stimulate further investigation along this line. The belief which many observers hold, that the toxemia of pregnancy is primarily associated with intestinal and hepatic disturbances and that the kidneys are involved secondarily, seems to be borne out by the data secured. The following investigations were made and will be discussed in order of importance relative to the cases reported.

**Quantity:** In regard to what is the normal quantity of urine secreted by the pregnant woman it can be safely said that any amount between 1000 and 1500 cc. in 24 hours should be considered within the physiological limits. This it would seem is a wide enough range to allow for the normal variations in quantity, which of course will depend upon the amount of fluid taken, and the amount excreted through other channels, mainly the skin, bowels and lungs. Of the 344 specimens examined the 24-hour quantity was noted in 242. Of this number 110 or 32% showed that the quantity excreted was within the normal limits, and in 106 or 30% it was above 1500 cc. In these cases there was not one patient who was clinically toxic at the time the analysis was made; though in a small percentage of cases the urinalyses showed evidences of a mild degree of hepatic and intestinal disturbance. In 26 analyses, or 8%, the quantity excreted in 24 hours was less than 1000 cc., and of these 60% were clinically toxic at the time the analysis was made and all showed products of disturbed intestinal and hepatic metabolism in the urine. In the 15 specimens which were below normal in the quantity excreted 4, or 26%, showed evidence of renal irritation, namely albumin.

**Indican:** It is generally accepted that the presence of indican in the urine is evidence of proteid putrefaction in the intestinal tract, and according to Herter this is due to the action of putrefactive organisms of which the colon bacillus is the predominating type. Of the 53 cases 47, or 88%, showed the presence of indican in the urine at some time or other during their pregnancy. The difficulty of judging how early indican appears in the pregnant woman is due to the fact that the patient does not report to the physician in charge of the case until the pregnancy is somewhat advanced. In our series of cases indican has been discovered as early as the seventh week, at which time the first urinalysis was made. Whether or not it might have been found in the urine before pregnancy took place is, of course, impossible to state. Thirty-four of the 53 cases, or 64%, showed small amounts of indican. Sixty per cent. of the cases and 20% of the total 344 analyses showed moderate amounts. A large amount of indican was present in 41% of the cases and in 11% of the analyses. From a pathologic standpoint only those showing a moderate and a large amount need be considered, as traces of this substance are frequently present in the urine of healthy individuals. It is interesting to note that those cases which showed a large amount

\* Read at the Forty-first Annual Meeting of the State Society, Santa Barbara, April, 1911.



of indican usually showed acetone at the same time, whereas those which showed only a small or a moderate amount rarely showed acetone. This would rather tend to indicate that acetone is more prone to appear when the degree of indicanuria is intense. In other words when the intestinal putrefaction is marked there is a tendency to the formation of acetone as well as indican.

**Acetone:** This is generally accepted as due to the incomplete oxidation of the fatty acids such as B-oxybutyric and diacetic acid. Acetone is found in the conditions in which there is an excess of tissue breakdown, to wit: severe anemias, malignant growths and starvation. It has long been recognized that it is of frequent occurrence in the pernicious vomiting of pregnancy. It is also found when there is a failure on the part of the body to burn carbohydrates as seen in diabetes mellitus. Hence, when acetone is found in the urine the various morbid conditions with which it is associated should be eliminated as far as possible. It is noteworthy that some cases of the toxemia of pregnancy are comparable to diabetic coma, and this, it would seem, is due to the acetone bodies circulating in the blood. In our series of cases there was only one in which the toxemia was of this type and in this instance acetone and diacetic acid were present and these substances disappeared as the patient recovered. Of the 53 cases acetone was present in small amounts in 25, or 47%. This occurred in 59 of the analyses made, or 14%. A large amount of acetone occurred in 18 of the 53 cases at some time or other, that is in 37%. Of the total number of analyses made a large amount of acetone occurred in 37, or 10.5%. Of those cases whose urine gave evidence of a large amount of acetone 55% were clinically toxic at the time that the analyses were made. In consideration of the foregoing facts we wish to emphasize the point that a large amount of acetone in the urine, occurring, during pregnancy, in a woman otherwise healthy, shows that a tendency to toxemia exists and should be regarded as a *positive* danger signal. This should receive careful prophylactic treatment, under principles to be discussed later.

**Diacetic Acid:** As this is one of the so-called acetone bodies we would expect it to be present when acetone is abundant. It is present in a certain number of cases suffering from toxemia, though it must be remembered that this is not always so, and it may be absent even when the clinical symptoms of a toxemia exist. Of the 53 cases in our series it was present in but 7 and all of these were clinically toxic. In one of these acetone was present in large amounts, as well as diacetic acid, three weeks before eclamptic seizures occurred. In the second, headache, vomiting and high tension pulse were noted but convulsions did not occur. This latter patient had severe eclamptic seizures following her previous pregnancy and was comatose 4 days. As the confinement took place in Indianapolis the urinary findings are not known except for the fact that albumin was *not* present.

**Albumin:** Of the 53 cases, 22, or 41%, showed albumin in the urine at one time or other during their pregnancy. In one, in which albumin was

constantly present throughout pregnancy, no symptoms of toxemia existed and the urine was practically normal in every other respect. In this case the albumin was probably due to an old nephritis and was not dependent upon the present pregnancy. In the first case cited above albumin did not appear until after the first convulsion, although it is worthy to note that acetone and diacetic acid were present three weeks prior to the eclamptic attack.

Albuminuria is a late manifestation of toxemia and it is therefore recommended that the other abnormal urinary constituents be looked for as well, since these will be found in the majority of cases some time before the condition is severe enough to cause renal irritation. In those cases which have progressed so far as to cause renal changes we find in the urine evidences of a severe acute exudative nephritis; that is, albumin in varying amounts, in one of our cases as high as 7% by Esbach.

Microscopically we find red and white blood cells, hyaline, granular and in some cases blood and epithelial casts.

**Ehrlich's Aldehyde Reaction:** This reaction is probably due to the presence of urobilinogen in the urine as claimed by Neubauer. Under normal conditions the urobilinogen is supposed to be derived in the intestinal tract from the reduction of biliary pigments, then absorbed by the liver and excreted. Berghausen, quoting Neubauer, states that a pathological urobilinogenuria occurs when the liver is insufficient; or when the liver is unable to excrete the urobilinogen, after it is absorbed from the intestinal tract. A faintly positive reaction was present in 8% of our cases but this cannot be considered pathological as a faint reaction is often present in the urine of healthy individuals. If we accept the view of Neubauer that it is due to the presence of urobilinogen we have an explanation of these faint reactions, since a small quantity of urobilinogen is present in the urine during health. Of the 53 cases 10, or 7%, showed a strongly positive reaction and of these 50% showed clinical symptoms of toxemia. It is of interest to note that an immense reaction was accompanied by a large amount of indican and also by the presence of acetone in the urine in many of the cases, indican being more constant than the acetone. From the foregoing remarks it would seem that here we have a method of detecting to a certain extent, liver insufficiency, and hence it is of importance in the toxemia of pregnancy.

**Urea:** Our observations upon the excretion of urea coincide with the generally accepted view, that in cases of toxemia the quantity excreted in 24 hours is diminished.

I want to impress upon your minds the absolute importance of early and frequent examinations of the urine throughout pregnancy, for I believe by this means we can anticipate clinical manifestations. Over one-half of the cases reported have been clinically toxic as shown by increased blood tension, headache, nausea, and constipation. The fact is clear that with careful urinalyses one is able to detect the beginning of toxemia frequently 24 or 48 hours before clinical signs become evident.

When these abnormal substances were found, the patients in some cases declared they were feeling well but within 24 hours, anorexia, nausea and constipation occurred, followed by headache. If this condition is not relieved, it goes on from bad to worse and we get into the well known condition of pernicious vomiting. This is much more apt to occur early in the pregnancy than later. If the condition develops later in pregnancy and persists, we usually have as a forerunner the three classical symptoms of threatened eclampsia, to wit: pain in the pit of the stomach, denoting portal engorgement; excessive headache, and disturbance of vision. Long before this situation arises the condition should have been recognized and prophylactic treatment instituted.

*Treatment:* The treatment under such conditions may be summed up in a few words,—restriction of diet and free elimination! The diet should be cut down to a minimum as the trouble usually arises from defective hepatic and intestinal metabolism due to proteid indigestion. We therefore eliminate all proteids from the diet: these include milk, meat, soups, fish, game and all vegetables and cereals high in proteid, such as oatmeal and peas. Buttermilk is allowed on account of its nutritious value and the action of the lactic acid bacilli on the flora of the intestinal tract. Free elimination is immediately established by the use of calomel in divided doses followed by salines, provided there is no renal irritation. Where there are evidences of acute nephritis the calomel is omitted and saline purgation is depended upon. High colonic flushes of large quantities of normal salt solution are given daily, either by return flow rectal catheter, the Murphy drop method, or simple gravitation, with the patient's hips well elevated on an inclined board placed in the bed. The reservoir should be kept at a temperature of 115° or 120°, and as much as 3 or 4 gallons of solution can be run in and out of the bowel in a few hours, according to the method used. In cases complicated with acute nephritis or inanition the sugar solution is preferable. There is here no danger of retention of chlorides and we secure the caloric value of the glucose besides decreasing the specific gravity of the blood, and thus backed by the carbohydrates, the body can live temporarily on its own proteids. Lettuce, dry toast and Zwiebach are allowed, together with buttermilk and water in large quantities, until the next urinalysis has been made, which should be at the end of 48 hours. If there is no improvement in the condition the same restricted diet is continued. If, however, the abnormal substances have decreased materially or entirely disappeared the patient is allowed a more liberal diet. Carbohydrates are gradually added, then fats and lastly proteids in small quantities, using first the white meat of chicken, then a little white fish and eventually the heavier meats in great moderation. A free daily evacuation of the bowel is absolutely necessary for the welfare of the pregnant woman, and this must be strongly impressed upon her mind.

In cases of obstinate acetonuria, which may possibly be due to starvation, the diet is increased

materially and from 10 to 30 grains of sodium bicarbonate are given 3 times daily to overcome the acidosis. In other cases where elimination is poor and sluggish the judicious use of KI, either with or without small doses of thyroid extract has proved of benefit, by increasing elimination. These are practically the only drugs, with the occasional use of some of the salicylates, that have been found of any value in combating this condition. Occasionally some digestant may be used when there is considerable formation of gas in the stomach and small intestines.

I wish to emphasize the fact that the ordinary urinalysis, in which tests for albumin and sugar alone are made, is a mere waste of time. It tells absolutely nothing! A careful urinalysis and proper attention to the pathologic substances present will often prevent the appearance of albuminuria. In other words, by the time albumin has appeared in the urine, it means that a profound intoxication has been going on for a considerable length of time and the kidney breakdown is secondary to the primary cause of the trouble.

In some cases of profound toxemia which begin with conception and resist all lines of treatment, it goes without saying that after a careful trial of prophylactic measures, curettage must be at last resorted to for the relief of the patient. The keynotes of the situation are the general condition of the patient, her strength, appearance, pulse, together with temperature, persistent or intractable vomiting; a picture with which you are all familiar.

#### SUMMARY.

I. The quantity of the urine excreted in 24 hours is usually diminished in cases of toxemia of pregnancy.

II. Indican when present in large amounts should receive careful attention as it is probably the forerunner which indicates a beginning toxemia.

III. Acetone should be tested for in every case. In the series reported 55% of those showing a large amount of this substance were clinically toxic. When acetone appears in the urine it is a manifestation of increasing toxemia of which we are forewarned by the presence of the lesser substances, especially indican. I consider the pregnant woman developing acetonuria to be in a most serious condition and her case should be watched most carefully. The situation is much more alarming with this development than if the urine merely presented indican with or without a positive aldehyde reaction. Unless the condition be relieved and responds to treatment eclamptic convulsions are almost sure to supervene.

IV. Diacetic acid when present denotes an increase in the severity of the toxemia and is usually late in appearance.

V. In Ehrlich's aldehyde reaction we have a means of determining the sufficiency or insufficiency of the liver and it would appear that a strongly positive reaction is a danger signal.

VI. The appearance of albumin is a late mani-



festation and should not be waited for, as it may not occur even though the toxemia be severe.

In closing I wish to emphasize again the importance of careful, frequent and systematic examinations of the urine of pregnant women and beware of acetoneuria.

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### ARTERIOSCLEROSIS; REVIEW OF CASES.\*

By DONALD J. FRICK, M. D., Los Angeles.

The cases chosen for review were all private cases that have been watched for periods of from one to five years. The symptoms of each were due to the arteriosclerotic changes or accompanying hypertension; none were accepted that had prominent symptoms due to other conditions.

The interest in the condition is due to its frequency everywhere. This is true in Southern California, especially where the worn out and broken down come for rest and recreation, and where on account of the climate every day is a working day for the people who live here. The "wear and tear" of life is constant and extreme.

As these cases are always with us and are every day being produced in our surroundings, every one of us should be familiar with the symptoms, the cause, the prophylaxis and the treatment.

Recognition of the pre-sclerotic stage will save many useful lives, recognition of the moderate cases may prevent progress of the condition, diagnosis of advanced cases often gives opportunity for amelioration of symptoms and prevention of sudden disaster.

To bring before you the salient etiological factors, the everyday symptoms, the points for diagnosis, and a few points of treatment that have been useful to the writer, this review has been undertaken.

Taking these twenty-two cases of arteriosclerosis, some late and some early, it has been the intention to classify them so they can be easily followed.

First as to etiological factors:

#### I. Heredity:—

Immediate family:

- Five had one parent die of chronic nephritis.
- Four had one parent die of heart disease.
- Two had one parent die of arteriosclerosis.
- One had both parents die of cerebral hemorrhage.
- One had a brother die of cerebral hemorrhage.
- One had one parent die of cerebral hemorrhage.
- One had one sister die of cerebral hemorrhage.

#### II. Age limits:

- 2 bet. 20 and 30.
- 4 bet. 40 and 50.
- 7 bet. 50 and 60.
- 8 bet. 60 and 70.
- 1 over 70.

#### III. Sex:

- 8 males.
- 14 females.

#### IV. Class:

- 4 rich.
- 10 well to do.
- 2 poor.
- 6 moderate.

#### V. Thirteen married; 3 single; 6 widowed.

#### VI. Occupations:

- 3 bankers.
- 3 business men.
- 1 retired.
- 3 housewives.
- 1 teacher.
- 1 ranchowner.
- 1 student.
- Remainder no occupation.

#### VII. Race:

- 20 Americans.
- 1 French.
- 1 Australian.

#### VIII. Residence:

- Ten have lived in Southern California from 8 to 30 years.
- Remainder under 5 years.

#### IX. Immediate causes:

##### a. Infections—

- 11 have had typhoid.
- 2 have had tuberculosis.
- 4 have had pneumonia.
- 1 has had a venereal infection.

##### b. Constipation—

- 5 atonic over 10 years.
- 2 spastic over 20 years.
- Remainder none.

##### c. Mental strain—

20.

##### d. Alcoholism—

- 3 moderate drinkers.
- 1 heavy drinker.

#### X. Complaint:

- 4 retinal hem.
- 4 conjunct hem.
- 2 temporary blindness.
- 1 paralysis.
- 2 pain in legs and feet.
- 3 temporary paralysis.
- 1 dimness of vision.
- 3 headaches and indigestion.
- 1 shortness of breath on exertion.
- 1 shortness of breath after retiring.
- 1 blood in urine.

#### XI. Subjective symptoms—

- 9 headaches.
- 9 dizziness.
- Dyspnoea—
- 10 on exertion.
- 1 after retiring.

\* Read at the Forty-first Annual Meeting of the State Society, Santa Barbara, April, 1911.

## Amaurosis—

3 temporary.

## Vision—

4 lim. of field.

6 dimness of vision.

Remainder good.

## Unconsciousness—

2 temporary periods.

## Paralysis—

2 transient.

1 permanent.

## XII. Objective symptoms:

## General nutrition—

6 above normal.

8 below normal.

## Heart—

15 hypertrophied.

3 dilatation.

Remainder normal.

## Murmurs present—

3 mitral.

## Irregularities—

6

## Reflexes—

12 exaggerated.

6 normal.

3 diminished.

## Arteries—

10 palpable.

7 def. thickened.

5 thickened and tortuous.

## Blood pressure—

The readings were the averages during the time they were under treatment and were taken with a Cook's modification of Rivva-Rocci, a Faught, and with Kilbourn's sphygmomanometer; the earlier cases were all gotten by palpation of the radial—the later cases checked by the auscultory method.

4 bet. 120—130.

4 bet. 140—150.

7 bet. 150—180.

4 bet. 180—200.

3 bet. 200—250.

## Retina—

7 hemorrhages.

12 tortuous vessels.

2 spasms of vessels.

## XIII. Lab. examinations:

Urine, average of all examinations made.

Amount in 24 hrs.

6 normal.

9 increased.

7 diminished.

Spec. gravity—

9 normal.

3 high.

10 low.

## Albumen—

6 present.

16 absent.

## Casts—

5 present.

Remainder absent.

## Indican—

15 trace.

3 increased amount.

4 none.

Anemia, Reds under 4,000,000. Haem. 75.

11 present.

4 absent.

Remainder blood not counted.

## XIV. Complications—

6 intestinal nephritis.

2 pul. tuberculosis. One of these had B. P. of 120, and thickened and tortuous arteries.

1 Chronic cholecystitis.

Each of you has perhaps realized the inadequacy of such a segregation of etiological factors, symptoms, and signs, as it does not give you all the facts that are desirable. For instance it would be valuable to know the age of the patients with extremely high blood pressure, thickened arteries and serious symptoms,—without a detailed history of each case this is impossible. A woman of 46 and a man of 68 had the highest blood pressure, the woman's arteries were thickened and tortuous, the man's were simply thickened. One had temporary hemiplegia, the other permanent hemiplegia, so it was through the whole list of these cases; therefore this arrangement seemed the best that could be made.

The points of interest brought out by this summary are:

First, 15 of these patients had one or more of their immediate family die of a disease of the circulation. As Osler says: "Not only are there individuals, but whole families with 'hobby' blood vessels."

Second, the age limit from 25—75

Third, the predominance of females 14—8. A word about this, the predominance of women patients with arteriosclerosis is probably due to this locality. Women who live in the southwest, especially the arid regions, are continually under a nerve strain and therefore more likely to have early changes than men. Four of the severe cases of this series were women who had lived for 15—30 years in what was absolute desert.

4th, practically all these people were brain workers and money makers.

Fifth, ten had lived in California from 8—30 years. Twelve had come to California for their health.

Sixth, eighteen had had infections of definite severity. Seven had constipation of years' standing. Twenty of them had gone through years of mental strain. Four only had any alcoholic history.

The complaints of these patients are of interest:

Twelve of these patients had gone to oculists and were referred to me by those men.

The conditions found were unusual, comprising:

4 retinal hemorrhages. 2 dimness of vision.

2 temporary blindness. 4 conjunct. hemorrhages.

With the exception of two of these patients a proper diagnosis had not been made until they were seen by the oculist.

Eight of the remaining ten cases had had varied diagnoses from time to time.



The symptoms as a whole need no recapitulation, as most of them are those ordinary to the condition.

**Diagnosis:** In the foregoing paragraph has been mentioned the frequency of diagnosis made by the oculist, and too much praise cannot be given them for their ability to diagnose not only the late but also the early cases, which need attention and may be saved a great deal of the subsequent troubles of this malady. Early diagnosis will probably always remain in the hands of the oculist, as Dr. Geo. de Schweinitz and others have shown that the retinal arteries are the most important in which to see early thickening. The late ones should not need the eye man to be recognized.

Most of the cases here reported had been treated for either neurasthenia, nervous dyspepsia, heart disease, kidney disease, rheumatism, or our old friend uric acid diathesis.

As sclerosis of the arteries is not as a rule evenly distributed throughout the whole system diagnosis is sometimes difficult. However, careful attention to history, symptoms and signs gives us definite knowledge in almost every case. The history is usually one of high living, mental or physical strain, infections, over indulgence in alcohol or tobacco, and occupation poisoning. The symptoms may be all or a few of the following:

Headaches, dizziness, painful feet and legs, dyspepsia with eructation of gas at intervals especially after retiring, pain or soreness over the abdomen.

Furthermore we find dyspnoea, either on exertion or in one or two hours after retiring, also temporary blindness, limitation of field or dimness of vision.

There may be periods of unconsciousness followed by temporary or permanent paralysis and mild or severe attacks of angina.

In the late cases all the symptoms of heart and kidney insufficiency occur.

With such a history and symptoms, we may expect to find the cardinal signs, on physical examination, leading to a definite diagnosis. These are:

1. Thickening of the peripheral arteries.
2. Signs of hypertrophy of the left ventricle—dislocation of the apex outward—prolonged rumbling first sounds and accentuated aortic second.
3. Heightened blood pressure.
4. Occasional appearance of albumin in the urine.

Having arrived at this definite diagnosis the question arises: to what extent is this condition amenable to treatment? The results in my series are as follows:

None of these cases can be said to be cured. Seventeen of them, however, were definitely improved, that is to say their subjective symptoms for the time at least, have disappeared or been ameliorated. The two between 20—30 have absolutely no symptoms at present. One man with dyspnoea on retiring has been free from this symptom for two years. Digestive disturbances have been in several cases almost abolished.

Five were not improved,—perhaps relieved of one symptom, only to have others appear.

Anatomical results have, of course, been nil.

Decrease in blood pressure was accomplished in

ten, these were cases that were able to so arrange their lives as to free themselves from care, and strictly keep regular hours of rest. Any break in the routine has always been accompanied by return of high blood pressure. The amount of decrease was from 10 to 40 mm.

In twelve cases the blood pressure either remained practically stationary or gradually increased.

Four of the cases which had retinal hemorrhages are still under observation and from time to time have new hemorrhages.

**Treatment:** The object of treatment of this disease is threefold:

1. To remove existing causes which increase existing conditions as,

Constipation.

Chronic infections.

Nerve strain.

Muscle strain.

Injurious foods and liquors.

All three objects may be secured by hygienic, dietetic medicinal and psychic treatment.

Hygienic treatment must consist of:

Definite hours of rest, exercise and recreation.

Proper clothing.

Climate and elevation suited to the several needs.

Perfect ventilation of sleeping apartments.

Regular bathing in warm water for a period of 20—25 mins.

**Dietetic:** Foodstuffs so chosen as to meet the needs of the individual case; anti-constipation diets for some, obesity diet for others, fattening diet for a third class. We must keep in mind at all times that certain foods,—as meat extracts, spices, foods rich in proteids, and alcoholic beverages are injurious to kidneys definitely impaired.

Fluid intake must be carefully guarded, as large amounts, over 1500 cc., will raise blood pressure and increase the pathologic condition, thereby augmenting existing subjective symptoms.

**Medicinal treatment:** The nitrites, either as sodium nitrite or nitroglycerin do temporarily lower blood pressure, but certainly only when hygienic and dietetic treatment is carried out.

It is a mooted question whether blood pressure should be lowered as the rise is undoubtedly a protective measure on the part of the organism to make up for loss of elimination through temporarily or permanently impaired organs.

The different bromide preparations are of constant value as they relieve nerve strain, which is at all times distressing and absolutely harmful to the patient.

Cathartics should be used intelligently, not as is often done to counteract the baneful effect of large amounts of fluids given to wash out the kidneys, but to decrease intestinal putrefaction and absorption of toxins.

The iodides have always been a part of the treatment of this condition, not because they affect in any way the existing arterial changes but rather to help protect the vessel walls from further damage, and to increase elimination of toxic substances. Certainly the effect of these drugs is most gratifying in

many cases,—relieving muscular pains, decreasing dyspnea, etc.

Digitalis in small doses has to be used occasionally for those individuals with dilated hearts and the accompanying symptoms of lost compensation.

Psychotherapy: In no other class of medical cases is it as necessary to put the mind at rest and give encouragement as it is in these. In handling these people one must have tact, firmness and cheerfulness at all times.

To write out definitely for them every small item of the desired regime is the best beginning of psychic treatment. Routine relieves their minds and gives them confidence.

In conclusion, our duty it seems to me to our patients with arteriosclerosis is to acknowledge their condition as early as possible, tell them frankly their danger, help them to moderate their lives so that they may go on comfortably to the end of their allotted time.

#### Discussion.

Dr. W. Jarvis Barlow, Los Angeles: It is impossible at this late hour of the morning to take up the many interesting features that Dr. Frick has presented. A few points, however, have come to my mind, i. e., to emphasize the importance of early diagnosis and the help of the oculist in these cases. The percentage of members in a family having similar trouble of circulatory disturbance, stated by Dr. Frick, as about 70%, coincides with most observers. We almost always find other members of a family with circulatory disturbance. I remember a family in which both the parents died and all the children (4) are now suffering from arteriosclerosis. In regard to the symptoms, the things most notable are the mental disturbances, vertigo and pains in the extremities. These are the things which impress me a good deal. The causes are generally over-exercise mentally or prolonged mental exercise rather than prolonged physical exercise; over-eating rather than over-drinking or smoking. The cases I have seen have been more from prolonged mental disturbance and strain. A few words in regard to treatment. Dr. Frick has laid great stress rightly on the matter of rest and diet. I do not know of any class of cases where one can get such good results with mechanical aid and without medicine as in arteriosclerosis. Diet of milk and vegetables or a buttermilk and vegetable diet, has been most efficacious,—also rest and exercises and baths. Dr. Frick did not give quite enough emphasis to baths,—electric or warm baths. Recently I have given several cases Nauheim baths who did not get well as rapidly as those under the electric baths. The electric baths are given with the idea of increasing the elimination and correcting the faulty metabolism, and also reducing the pressure. Many men have recently written on the high frequency current bringing down the blood pressure. I have personally had no experience with that. I regret the hour is so late for continuing this interesting subject.

Dr. T. J. Orbison, Los Angeles: I think it is a great pity that this subject should be crowded into the end of a morning, as there is so much to be said about it. It is really one of the most important questions to be considered by physicians in general. A great many of these cases are seen first by the neurologist—they come with indefinite symptoms—mental agitation, depression, interference with sleep—interference with digestion and mental warnings. The treatment depends a good deal upon when you get the case. I think the essential thing is to find out how long the patient has been the subject of this condition; to this end I have every case examined by an oculist, because so often the first symptom is sclerosis of the eye arteries. If you can get a case

as early as that without any other symptoms, except possibly some heightened tension, the patient should be out of bed for a certain length of time each day. Very many women are affected. I think that that shows that we can, to a great extent, rule out alcoholism as a cause. In a good many of the cases in men, however, instead of alcohol I believe that tobacco is a cause. There is no drug which will heighten the blood pressure as will nicotine. I put these patients to bed for a time—the time being regulated by the nervous condition of the patients. I believe with Dr. Barlow, that the bath should be instituted early. You will find a quieting of their minds and of their hearts. In treatment, we know that we have connective tissue being formed in the media—iodide is the drug to use, and after a time by iodides alone the blood pressure will come down and stay down. When the blood pressure is up to 200 or even 150, I believe in using the nitrates in addition to widen the lumen of the arterioles. In late cases showing anginal symptoms, nitroglycerin is of benefit. But I believe the main point is in absolutely regulating the whole mental and physical life of the patient.

#### TREATMENT OF EPITHELIOMA BY CURETTING, FOLLOWED BY CAUTERIZATION WITH CHROMIC ACID AND LATER BY EXPOSURE TO X-RAYS.\*

By GEORGE D. CULVER, M. D., San Francisco.

In the treatment of a superficial epithelioma certain points must always be carefully considered in devising a line of procedure that will completely remove all the pathologic tissue. No matter what line of treatment is used, outside of complete surgical removal, curettage is essential if the infiltration is at all extensive, and those cases in which it is not necessary are exceptional. Though many different methods of handling such a lesion are well known, attention is called to a particular method as one of preference in selected cases for gaining the best results both as to complete removal and as to absence of a disfiguring cicatrix. No one wishes to be left with a conspicuous scar, not even an elderly person, and many patients presenting epitheliomata of the face are still young.

During a number of years of association with Dr. Douglas W. Montgomery and Dr. Howard Morrow, I have had the opportunity to see many cases successfully treated with chromic acid crystals after careful curettage. This chemical is chosen primarily because it is a liquefying caustic, and like potassium hydrate it dissolves the cells and does not produce a banking up of the cauterized tissues when first it comes in contact with them, as do the caustics of which silver nitrate is the type.

The choice of the chemical as a caustic is an interesting and important matter. Some chemicals act superficially and form a leathery barrier against their deeper action. Other caustics are liquefying and tend to penetrate deeply. To illustrate: nitrate of silver is an excellent cautery to stop superficial bleeding because it forms this tough membrane, whereas one of the disagreeable features of using chromic or trichloroacetic acid, caustic potash or acid nitrate of mercury is that bleeding is not stopped as with the first mentioned cauterizing agent, but the

\* Read at the Forty-first Annual Meeting of the State Society, Santa Barbara, April, 1911.



tissues are cut into more deeply. This action, which may be very disagreeable in other conditions, is what you wish here. Dr. Alonzo Clark used to say that if you put a mouse into chromic acid it would be dissolved. This dissolving action is just the property required in an infiltrative disease like epithelioma.

Chromic acid is used because experience has shown that the destruction produced is sufficiently extensive to remove all the pathologic epithelial structures remaining after curetting, and furthermore after it acts it forms a tough crust countersunk in the tissues, effectively closing the wound and preventing septic infection. The prevention of sepsis is an important matter in the resulting scar, as the less the sepsis the less liability is there to redundancy of granulation tissue and therefore to redundancy of scar tissue.

No matter how extensively chromic acid is used, it is apparently devoid of any dangerous systemic effects. Its foregoing properties are so advantageous that Dr. Montgomery has used it in the treatment of superficial epitheliomata for twenty years.

In using chromic acid most cases can be handled with local anesthesia, only a few requiring general anesthesia. All the friable tissue is vigorously scraped away until a firm underlying base is reached. Too much importance cannot be placed upon thoroughness of curetting. Attention is called to this by Dr. Sherwell in speaking of curetting and the application of caustics, and his results prove his method an excellent one.<sup>1</sup> The caustic he uses would, in the hands of one who would not curette so thoroughly, be much less effective and recurrences would be more frequent.

After curetting, fresh bright red crystals of chromic acid, taken from a bottle that has been kept sealed, are applied to the dry raw surface and pressed down. That the surface should be dry and that the chromic acid crystals should be bright red are both important points. Any deepening of the color shows the presence of water. Moisture is to be guarded against, both in the crystals before they are applied and in the wound on the application of the crystals, as chromic acid in contact with a liquid becomes strikingly less vigorous in its action. The dryness of the curetted surface is attained either by pressure with cotton pledgets or by applying a solution of cocain and adrenalin. Only after all oozing has stopped can the caustic be advantageously applied. The object of the cocain in contact with the raw surface is to render it less sensitive to the burning effect of the acid. This is helpful in treating a feeble elderly person as it prevents any distinct shock caused by the lightning-like rapidity with which the cauterant acts, and a restless patient is less likely to jerk away from the operator.

Chromic acid in contact with the raw tissues bubbles up and becomes black, and much heat is developed. The black liquid is already, however, much less active than the bright red crystals and does very little harm by flowing over on the sound skin. This spreading is prevented by the use of cotton. Often the acid burns into small blood ves-

sels, and it is not unusual to be surprised by a shower from a "spurter." Pressure alone is usually all that is necessary to stop such bleeding; if oozing is persistent a few more crystals may be pressed over the bleeding point. As the application dries it forms a thick, black, protecting crust, that, as before stated, is countersunk in the skin. This dark brown, depressed, hard covering so firmly closes the wound that no other dressing is necessary. The reaction produced is sometimes quite marked, but it soon subsides and the congestion is undoubtedly an aid in destroying and removing any remaining pathologic cells.

The pain produced is of short duration, is of a severe burning character for a few minutes, reaches its climax before the patient leaves the office and is practically gone in one to two hours. Later there may be some annoyance caused by the pressure of the unyielding crust, and in a neurotic individual this discomfort may be magnified to the extent of his feeling real pain. The great majority of patients consider it lightly. Still later, as the crust loosens, there is some itching. This can be relieved by softening the outer edges with a mild antipruritic salve and removing the dried accumulation formed by the oozing from underneath the main crust. Should there be still further discomfort the application of a hot starch poultice containing boric acid will readily give relief. This sort of poultice is also an aid in loosening the crust when its removal is desired.

The only further treatment necessary is that which may be indicated symptomatically. Dressings are unnecessary, as the crust forms all the protection required. The part may be powdered or covered but only to disguise it. Careful cleansing is of course advisable and the patient should not be away from the physician too long, as frequently a mild pyogenesis appears, which is annoying only when the pus is held in by the crust. It is of minor importance and never leads to anything serious if the crust is loosened and the part frequently cleansed with an antiseptic lotion.

The crust ordinarily remains on five or six weeks, during which time the process of healing takes place underneath. Sloughing of the crust begins, usually, in ten days or two weeks, and is first evidenced by a loosening at the edges where healing first occurs.

In following a number of these cases in which results as to apparent complete cure have been most excellent and in which the cosmetic results were equal to any obtained by use of other caustics, my attention was called to the fact that some of the cicatrices were not as good as those following complete or partial treatment with X-Rays. In fact, the scars following the use of the X-Ray are less disfiguring than those resulting from any other line of treatment I know. In all probability whatever complete cures are obtained by the use of radium would show results as good.

The observation of the irregular cicatrices led me to the use of X-Rays for the purpose of attempting to control the scar formation. My conclusion is, of course, a tentative one, as it is based upon a limited number of cases treated in the office, but I believe that X-Rays, in conjunction with the use, previously,

<sup>1</sup> Further Observations on the Technique of an Efficient Procedure for the Removal and Cure of Superficial Malignant Growths, by Samuel Sherwell, M. D. The Jour. of Cutaneous Diseases, October, 1910.

of the chromic acid method, is advisable. The plan has been to remove the crust as soon as it is fairly loose, some time during the third or fourth week. The part and a border around it is then exposed to X-Rays in medium dosage, as at a distance of six inches for ten minutes, using on an average a voltage of thirty and an amperage of two, all the surrounding parts being carefully covered with lead foil; such dose to be given two or three times a week during the subsequent period of complete healing. It is necessary to remove the crust as the rays have little effect unless the base is exposed. In extensive lesions which have been cauterized with chromic acid it is at first difficult to remove all the crust. Its margin can be cut away, exposing the part where healing begins, and this outer free surface can be exposed to X-radiation. Each subsequent time more of the crust will be found removable and more of the base exposed for treatment. By this procedure one has full control over the extent of unhealed surface where X-radiation is indicated.

The result of this use of X-Rays on the lesion as the scar is forming is analogous to the beneficial effect produced by the rays in keloids whether secondary or spontaneous in their development. I believe that in many instances hypertrophic scars can, by the above method, be prevented where they would otherwise develop and be a poor advertisement to the physician as well as a source of chagrin both to himself and to the patient.

Not all cases are handled by the method in question, as the statistics herein given will show. Potassium hydrate stick has proven the preferable caustic when a similar treatment is carried out on a lip epithelioma. Arsenic paste is more far reaching in extensive deep involvement, and is used, but not as frequently as formerly, while other cases indicate the most complete surgical removal, and this method is imperative if there is glandular involvement. Still other cases may baffle the surgeon and yet be amenable to the palliative and even curative influence of the Roentgen rays. Radium has its use in these cases as well as in those less serious. Dr. Friedlander speaks highly of fulguration in eradicating the growths.<sup>2</sup> Only a wide experience will enable one to choose the best treatment for a particular case, and to alter it later is surely not a crime. It is always necessary to weigh all points most carefully before beginning any line of treatment. We believe that in not a single instance were the patient's chances jeopardized by the method described. Where a second operation is necessary, if done early it is far from being a formidable affair.

The points considered in the selection of cases are these: The lesion generally has been present many months, is either a firmly indurated plate or tubercle in the skin, of shiny, waxy appearance, pinkish or yellowish in color, showing distinct dilated capillaries near its surface, or it is an ulcerated lesion showing in some part of its periphery a raised, rolled or nodular firm, waxy border which presents the characteristic dilated capillaries, and having an irregular center with an uneven, easily bleeding base that discharges a viscid fluid which

dries into dirty yellowish crusts. Its appearance is often greatly changed by added infection or by previous treatment, but some of the characteristics are always present. Metastatic processes are uncommon in this type of epithelioma, but are sometimes present, and if so an entirely different treatment is required, and if inoperable it becomes the unpleasant duty of the physician to so consider it.

It is this type of growth that is so frequently mistaken for lupus, but the history of its not having begun so early in life and the absence of the so-called apple-jelly nodules seen in lupus vulgaris through a glass pressed over the lesion would rule out the latter. It is possible it may be a euphemism on the part of the doctor in telling the patient he has lupus, as any name implying cancer carries with it such terror.

Out of one hundred and thirty-nine patients presenting epitheliomata, forty-four with fifty-three separate lesions were treated by curettage and the application of chromic acid crystals. The tumors were located as follows: Nose, fifteen; cheeks, fourteen; ear shell, seven; forehead, seven; eyelids, five; and one each on upper lip, lower lip, neck, chin and back of hand. Twelve of the forty-four patients had previously been treated by one or more of the following methods of treatment: Arsenic paste, CO<sub>2</sub> snow, curettage followed by the application of trichloroacetic acid, Paquelin cautery, surgical removal and "Christian Science," and there was either incomplete removal or recurrence from apparent complete removal. Five of the forty-four are now under treatment. Of the remaining thirty-nine, twenty-three of whom we have knowledge and who had twenty-seven different tumors have remained free from recurrence for periods of time varying from a few months to five years. We have fairly definite information that seven of the remaining sixteen never had recurrences or have not had up to the present time, and of six others information is unavailable. Three had recurrences and one of the five under treatment has a recurrence, making a total of known recurrences in four patients, practically nine per cent. Subsequent treatment of the four has been along similar lines.

Eleven cases have been treated with Roentgen rays following the removal of the crust formed by the cauterization with chromic acid, and the results are so satisfactory that we are following the plan quite generally.

In closing I wish to thank Dr. Douglas W. Montgomery, whom I first saw use chromic acid, for the use of statistics of cases treated since the earthquake and fire of April, 1906, and for his many valuable suggestions.

#### Discussion.

Dr. Albert Soiland, Los Angeles: Dr. Culver has given a very lucid explanation of the destruction of superficial epithelioma by chromic acid. This is a very large field to be covered in a short discussion. There are two or three points to be brought out in making the treatment clear. In using the method advocated, the curative agent in the treatment is distinctly chromic acid. The X-Ray is used to encourage healing. In curetting, the skin should be stimulated as little as possible. In the malignant varieties of superficial disease where metastasis is possible I do not think curettage a good procedure. It exposes the surface and opens up avenues for in-

<sup>2</sup> Treatment of Rodent Ulcers, by D. Friedlander, M. D., in Cal. State Jour. of Med., April, 1911.



fection. The avenues are then walled off. The chromic acid, I believe, is one of the best local caustics in the destruction of epithelioma. Gottheil uses this; Pusey relies more on the destructive work of the X-Ray alone; so does Reyn of Copenhagen. I have not used many caustics personally. I have used sodium ethylate or  $\text{CO}_2$  ice, but rely largely upon the destructive action of the ray itself in the disease. I think the results would compare favorably with those of Dr. Culver's report. Whether the frequency of cure is as good with X-Ray alone is difficult to say. I have treated epithelioma for the last ten years with the X-Ray, and believe the percentage of cures is as high as that of any other method. The subject is a large one and requires much more time than this in which to discuss it properly. One of the gentlemen in discussing this paper has spoken of the ease with which epithelioma of the face can be cured by surgery. I will add that a great many of my cases have been post-operative cases of recurrence. Cases that have been referred to me by well-known surgeons.

Dr. Harry E. Alderson, San Francisco: The paper read by Dr. Culver and the remarks of the gentlemen discussing the same are very interesting. I am glad that something was said about the importance of determining beforehand which type of epithelioma is present. It is well known that the basal-cell epithelioma is comparatively benign as a rule and the squamous-cell type is a rather serious affair and shows a tendency to metastasize and involve the glands. With the basal-cell type we know that simple curetting and the application of some caustic will be enough to destroy the neoplasm if it is not very large. The action of the caustics, particularly chromic acid, arsenic and potassium hydrate will cause more or less marked inflammatory reaction, which reaction is supposed to destroy any of the remaining epithelioma cells. With the squamous-cell type it is of vital importance to thoroughly remove all the neoplasm and the involved glands as well, and this is best accomplished by a radical operation. The careful use of the X-Ray after first removing as much of the neoplasm as possible is a procedure which has the support of the best authorities. The results seen in the service of Drs. Douglas Montgomery and Howard Morrow at the Dermatological Clinic of the University of California Hospital, where I have been working for the past six years, justify the treatment. The scars that result are particularly good from a cosmetic standpoint.

Dr. E. D. Chipman, San Francisco: I think we must congratulate Dr. Culver on his very complete résumé of the local treatment of malignant growth by caustics combined with the X-Ray. I have never tried treating them by this combined method—the choice seems to me between X-Ray treatment or the treatment with caustics. Of the caustics I believe chromic acid is easily the best. It has never occurred to me to try the combination. It would be very nice if we could separate these cases into two distinct classes, in one of which we should find special indication for the use of the X-Ray and in the other indication for the caustic. In my own attempts to make this distinction, I have been disappointed. My experience with chromic acid has not been so favorable as Dr. Culver's concerning freedom from pain. I have found as a rule that the patient has complained of considerable pain. Concerning the resultant scar, I find the X-Ray better for the cosmetic result. I must say that both methods are good. The combination should give everything desired.

Dr. T. C. Edwards, Salinas: There is to my mind one objection to drawing deductions in a condition where you have to use three different remedies, each one of which is considered a cure for the malady treated. By curetting, by caustic application of and following the application of the X-Ray the results are frequently satisfactory. I might mention a case I had some twelve or fifteen years ago—an old

gentleman who had what I thought was an epithelioma of the nose. He had one of those papillomatous growths which broke down and he sent for me. I advised operation and he would not have it, and he said that he would treat it himself. He went around for a long time with a rag on his nose, and finally he was well and remained well until his death at the age of 93. I asked him after he got well what he had done for himself, and he said that he had used the yolk of an egg and salt. At the time I had charge of the County Hospital and I had a man out there with an evident epithelioma under his eye—so close to the eye that I could not operate without great disfiguring, so I put on the yolk of an egg and salt and it got well. What did the work?

Dr. Stanley Stillman, San Francisco: The title of this paper is somewhat misleading. It seems to me that the title of Dr. Culver's paper should have been "Treatment of superficial epithelioma of the face, not including lips, tongue or other portions of the body, etc." The paper, I hope the author meant to apply to that class of cases only. These may be treated by X-Ray with or without curettement and caustic, although I am sure that the combination will be more apt to give permanent cures than the X-Ray alone. The resulting scars are good in regions where plastic work is not always satisfactory. The X-Ray alone is sometimes efficient, but I have seen a good many not permanently cured and which had to be operated upon later. I want to emphasize, however, my objection to the treatment of epithelioma of the lip, penis, vulva, anus or other situations, or of deep epitheliomata of the face by such treatment as this. The lip border I have come to regard as a very serious situation for epithelioma on account of frequent early metastasis; and with me, epithelioma of the lip always calls for the removal of submental and submaxillary glands. The superficial epithelioma around the eyelids, nose, cheeks and forehead can be treated by Culver's method safely, but I am afraid that the treatment will not succeed in every case, and I am still inclined to favor—for growths of any magnitude or which have lasted for any length of time—the radical excision and the use of the Tiersch grafts or flaps to cover the defect, and removal of the regional lymph nodes.

Dr. Emerson, Oakland: I certainly enjoyed Dr. Culver's paper, as well as the discussions which have followed. I have listened with great interest to the results obtained by the caustic, X-Ray, curette and even the egg membrane and salt my predecessor referred to. That these cures can be obtained by such simple procedures is worthy of note. I feel, however, that it takes a very fine class of distinction to diagnose the particular case in which this method should be used. The general practitioner classifies most of these superficial face lesions in the same category, and I feel that it is dangerous to recommend their use, especially in lesion about the mouth and lips or genitalia. If under the cause of cancer, as accepted to-day, it is due to some irritation, as upon a chronic smoker's lips, spectacles, or a carcinoma developing on a stomach ulcer; we are to-day recommended to apply a number of different irritants—curette, X-Ray, caustic.

I take the liberty, therefore, of recommending for your consideration another method, which as yet has not been referred to. I mean a very sharp knife, preceded by the skin injection of a weak solution of cocaine. If the incision is so made, in removing the diseased skin and subcuticular fat, that the scar falls in line with the natural wrinkle of the face, it is scarcely perceptible. Often treated at one sitting with a couple of subsequent visits.

Here, too, is a field wherein we may exchange courtesies, as Dr. Culver has suggested, for I have treated a few cases that had previously been treated by dermatologists.

I take the liberty of referring to a personal experience with an old gentleman, eighty years of age,

with a large superficial epithelioma on the extension surface of the wrist the size of a dollar, also one on the side of the nose the size of a dime. I removed the former under cocaine; the latter growth was referred to the Dermatological Department of the Merritt Hospital, conducted by Dr. Harry Alderson, who used a method somewhat after that advised here to-day. The lesion on the wrist healed as rapidly as that on the face although it was several times larger. I believe Dr. Culver is right in treating these cases as he does, but I am never sure that I have the right kind of a case, so to eliminate all doubt I have always resorted to surgical methods.

Dr. George B. Culver, San Francisco: I am glad that emphasis was laid upon excessive and large doses of X-Rays in certain instances. There are many cases in which X-radiation seems to be the best treatment, but in order for the X-Rays to have their effect the indurated tissue must be removed, otherwise you may get healing but you will get a recurrence nearly every time. We have had a number of these cases act this way, and have found that the only safe method is to first get rid of the indurated tissue, either by surgical removal by the knife or by curetting thoroughly. There are cases in which you cannot use the chromic acid cauterization. As an example, an old lady of eighty-two was so affected by the curettage under cocaine that we could not put on the chromic acid and we did not dare to give a general anesthetic. We did use the X-Ray to the extent of twenty-five minute applications at close range and got a very marked reaction. Healing was slow and it has remained healed with an excellent scar for over a year. As far as surgery is concerned it is true that many cases come to us after surgical treatment, and well performed surgery, too. Other cases have been brought to us by the surgeons because there have been recurrences and it was feared that the same would be true after other operations. As an example of the benefit derived from the X-Ray, we have a case under treatment for a very deep-seated epithelioma of the neck that was removed a number of years ago and was cut out widely. There was a recurrence, and we tried a number of lines of vigorous treatment without success. One of our best surgeons who saw the man was willing to operate upon him, but felt that the cure was uncertain. At that time there was only a simple ulcer with a great deal of induration. Later the ulcer opened until it became as large as a half dollar. The man again asked for the X-Ray, and he was given something like twenty applications at twenty-five minutes each at the close range of two inches, until the reaction was so marked it looked as if the tissues would break down. The improvement has been most marked.

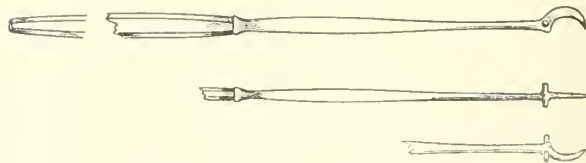
#### A NEW TONSIL KNIFE WITH A DESCRIPTION OF ITS USE.

By PERCY SUMNER, M. D., San Francisco.

In order to understand clearly the method of using a sharp knife in the enucleation of the tonsil, it will first be necessary to review briefly the anatomy of the tonsil. The tonsil lies between the anterior and posterior pillars of the fauces, in a triangular space formed by the two pillars conveying from the base at the tongue to the apex of the tonsillar fossa. The tonsil lies loosely in this space, being attached to the walls of the fossa by loose connective tissue passing from its capsule to the wall. The mucous membrane passing over from the pillars becoming fused to the tonsil itself and forming the inner covering of the tonsil. Consequently, in order to enucleate the tonsil quickly and surgically it is necessary first to cut the mucous membrane parallel with the pillars, from the base of the tongue along the anterior pillar (clear up to

the uvula in many cases) and then down the posterior pillar. The site for the cut is determined by pressing down the tongue—this puts the anterior pillar on the stretch and just posterior to it at the base of the tongue is a slight depression—here the knife is pushed into the *mucous membrane only* and this is incised for its whole length. Pulling on the tonsil then will show the capsule and with the tonsil dissector the adhesions are usually easily separated and the tonsil shelled out of the fossa. All that now remains being to snare off the tonsil at the base.

Since the tonsil can easily be pulled forwards and inwards, there is no necessity for the curved instruments that have been devised for grasping it and cutting the mucous membrane. They are awkward to use and a straight instrument fills all the requirements, and is more easily managed. I first used a probe-pointed knife, but early learned that since only the mucous membrane must be cut a sharp pointed small knife was needed. Acting on this idea I tried the Buck's bistoury and then later the Douglass crypt knife with the probe point ground down to a sharp point. But in cutting with these instruments I found there was a tendency for the mucous membrane to slip beyond the cutting surface on to the shank of the knife—thus going in too deep and the mucous membrane would then lie beyond the sharp edge of the knife. To obviate this I have devised the knife herein shown. It has the following advantages:



1st: The point being very sharp enables the operator to cut into the mucous membrane quickly.

2nd: The shape is such that the mucous membrane rides in the middle of the deep concavity, on a keen edge.

3rd: The guards on the limit of the cutting surface insure the cutting of the mucous membrane only—so that the most timid operator can use it without fear.

4th: And, lastly, it is so shaped that the field of operation is never obstructed.

To summarize: Tonsil enucleation means dissection; the first and important point being to incise the mucous membrane covering the fossa. To do the thing surgically requires a sharp knife, as in other parts of the body. When this incision is properly placed and made the rest of the operation, dissecting the tonsil from its bed is very much simplified. A freshly sharpened knife should be used for each operation.

#### PROCEEDINGS OF THE SAN FRANCISCO COUNTY MEDICAL SOCIETY.

During the month of June the following meetings were held:

##### Section on Urology, Tuesday Evening, June 6th.

1—Urology: Past, Present and Future. Martin Krotoszyner. Discussed by Drs. Vecki, Eaton, Teass, Krotoszyner.

2—Experience with Epididymotomy in Gonorr-



rhoecal Epididymitis. Louis Gross. Discussed by Drs. Spencer, Eaton, Spiro, Veckl, Gross.

3—Report of two cases of Kidney Colic. Martin Krotoszyner.

**Regular Meeting, Tuesday Evening, June 13th, 1911.**

1—Some Misconceptions. Recent Contributions and Problems Concerning the Lymphatic System. Dr. A. W. Meyers, Professor of Anatomy, Leland Stanford Jr. University.

2—Demonstration of Specimen from a Case of Liver Abscess. Leo Munter.

**Eye, Ear, Nose and Throat Section, Thursday Evening, June 23rd.**

1—Lantern Slide Demonstrations of the Anatomy and Pathology of the Semicircular Canal. Docent Hugo Frey, Vienna.

Refreshments were served after the meeting.

#### Urology—Past, Present and Future.\*

By M. KROTOSZYNER, M. D., San Francisco.

The first meeting of the recently formed Section on Urology of the San Francisco County Medical Society marks an epoch making event in the history of urology on the Pacific Coast. This occasion—all important and welcome to those of us whose interests and efforts are bent towards this hitherto neglected branch of scientific medicine—should not be permitted to pass without a few appropriate remarks upon the past, present and future aspect of urology.

The history of urology is best divided into two parts: the precystoscopic and the cystoscopic era. The first era produced two distinctly different types of workers in the field of pathologic conditions of the genito-urinary tract. The one group of great clinical surgeons, who owing to the material at their hands or on account of an individual inclination devoted their rare gifts of observational genius and technical skill to the study and treatment of diseases of the urinary tract—men like Thompson of London, Dittl of Vienna, Guyon of Paris, and many others—the other group comprising the so-called genito-urinary specialists, who treated venereal and in most instances skin-diseases and performed the minor surgery pertaining to the lower male genito-urinary tract. While the genito-urinary and skin—or as he was shorter and less respectfully dubbed, "clap-specialist,"—did not rank highest in the estimation of the profession at large, nevertheless it must not be forgotten that one of their rank and file, Albert Neisser, discovered and first described the gonococcus. Through this discovery the impetus was given to the present scientific conception of the pathology and treatment of gonorrhea, its various complications and sequels and this pathological condition formerly considered a negligible quantity was quickly raised to a respectable position in medical nomenclature.

Many and noteworthy were the advances in urological surgery during the precystoscopic era. Time and space though permit to point to but a few of the most prominent facts. The Frenchman Civiale gave us the lithotrite and with the discovery of the lithotritic aspirator by the American Bigelow, begins the era of modern litholapaxy, an operation in which our own Chismore excelled. Gustav Simon of Heidelberg planned and successfully carried out the removal of a kidney, an organ, without which continuance of life was considered impossible up to that time. The urine of the left kidney of a middle-aged woman was secreted through an incurable uretero-uterine and uretero-abdominal fistula, while the bladder-urine, representing the secretion of the right kidney, was found to be normal. By these means Simon was enabled to ascertain two facts, which in the present cystoscopic era are considered indispensable prerequisites to a contemplated nephrectomy, viz: the presence of two kidneys and the integrity of the remaining organ. Simon's first nephrectomy was successful, the patient making an

uneventful recovery; the patient in whom he, two years later, performed his second nephrectomy without the knowledge of the condition of the remaining kidney died 21 days after the operation from "pyemia" according to the official record, but most probably from deficient function of the remaining kidney.

While in precystoscopic times great clinicians studied and clearly described urological lesions, while a few great surgeons exerted their rare technical skill towards the treatment of disorders of the urinary tract, while men like Thompson and Guyon created famous urological centers at St. Peter's Hospital in London and the Hospital Necker in Paris where an international audience of physicians sat at their feet listening to their classical lectures on matters urological, nevertheless, it is true, that urology as a science per se exists only since its fundaments of diagnosis and treatment were created by cystoscopy. Up to the advent of the cystoscope we possessed a number of famous and gifted genito-urinary surgeons, who by their superior intuition, their enormous experience and individual skill were able to recognize and successfully treat lesions of the urinary tract that remained a *noli me tangere* to the average medical man. What narcosis and asepsis have done towards advancing and popularizing general surgery cystoscopy has accomplished for urology. From the hands of a few gifted observers and born technicians urology has come within the reach of every honest practitioner who is willing to devote his time and energies to the technic and scientific study of this special field of medicine.

Great and revolutionizing were the changes in the conception and treatment of urological lesions since Nitze presented his first cystoscope. Hypothetical or theoretical views, to which in precystoscopic times clinicians adhered for want of better or exact means of interpreting urinary symptoms, were replaced by a real diagnosis. Our views upon the inflammatory conditions of the bladder and the upper urinary tract, upon the cause of pains and the sources of hemorrhage were radically changed. Cystoscopy and its logical sequel, ureteral catheterization, enable us to localize the focus of an existing distressing pyuria and to devise its proper and effective treatment. The speculative and in most instances fallacious teachings upon the topical diagnosis of hematuria were replaced by the exact recognition of the bleeding focus. Casper and Richter's work on kidney-function did not only enable us to diagnose obscure renal lesions in their incipency, but also proved most valuable for the diagnosis of abdominal lesions in general. The differential diagnosis of gall- and kidney-stones and appendicitis on one side and spleen- and kidney-tumor on the other, of retroperitoneal, perityphlitic and perinephritic abscesses and other obscure intra-abdominal lesions is materially aided and in many instances only feasible by means of our modern urological diagnostic methods. Our views upon the pathology and treatment of tuberculosis of the genito-urinary tract have been revolutionized. Renal surgery has profited immensely through modern urological diagnostic means and the mortality of nephrectomy alone has been reduced from about 40% to less than 5%. Kummell for instance lost in precystoscopic times 3 out of 12 against 4 of 106 nephrectomies for tuberculosis and his death-rate of the same operation for aseptic stone-kidney has fallen to less than 3%.

The ranks of those physicians, who still consider cystoscopy and the newer diagnostic urological methods superfluous, too painful and often dangerous are gradually thinning out. Nevertheless, it is true, that cystoscopy is only slowly gaining ground and that the opinion is prevailing among the profession, that the method is unusually difficult of execution and unsafe as regards practical results. If properly done, though, cystoscopy and ureteral catheterization are almost painless procedures and I venture the contention that every well-trained physician pos-

\*Chairman's address delivered at the first meeting of the Section on Urology of the S. F. Co. Med. Soc., June 6th, 1911.

sesses the moderate dexterity required for the execution of an ordinary cystoscopic examination. It is, as I know from personal experience, a method that can easily be learned and no student of medicine should be permitted to enter upon his practical career without at least a superficial knowledge of the modern urological diagnostic methods which furnish the key to the correct interpretation of many gynecological, neurological and abdominal lesions. A note of warning, on the other hand, must be sounded against the opinion prevailing in many minds that the possession of a cystoscope is coincident with the correct interpretation of intravesical pictures or that it entitles its injudicious owner to apply it, for instance, to a contracted tubercular bladder. The cystoscopic tyro is responsible for the mistrust still extant in a large and justly conservative portion of the profession towards a method that, only if properly used, represents a veritable diagnostic and therapeutic boon to physician and patient alike.

The remedy for this evil lies in the hands of our medical under-graduate colleges, who gradually are awakening towards recognizing the importance of competent instruction in modern urology, which must be accomplished in spite of the overcrowded curriculum of clinical semesters. For the fate and welfare of the sufferer from urinary disturbances lies as ever in the hands of the family physician or general practitioner who sees the patient first. While it would be absurd to expect the average practitioner to be possessed of special knowledge and skill in the various branches of the medical art and science, he must, nevertheless, be familiar with the important points, the possibilities and limitations, the indications, and contraindications, in fact, the actual and practical value of certain special methods which to-day are required for establishing an exact diagnosis. The specialist should not rank higher than the general practitioner; the latter should possess an equally large fund of knowledge as regards the fundamentals and principles of special methods of diagnosis and treatment and the former, on account of his constant occupation with and large experience in a special field, should lend in the more difficult cases the aid of his better trained eye and hand.

Urology as a specialty is still *in statu nascendi* and does not yet occupy the secure position that other well established specialties hold. Though it must be conceded that many general surgeons or internists possess the knowledge and skill required for urologic work, nevertheless modern urology has grown to be an independent field for research and teaching with an immense and steadily growing literature, which can only be absorbed by the one who devotes his life to the study of this special branch. In accordance with a tendency prevailing in other specialties (gynecology, ophthalmology, etc.) that all pathologic conditions of certain organs or regions, internal as well as surgical ones, should fall into the hands of the various specialties, urology embraces the diagnosis and treatment of all lesions of the urinary tract. The surgery of the urethra and bladder as well as that of the ureters and kidneys must be mastered by the modern urologist who at the same time should have exhausted all means of conservative treatment before resorting to radical measures. The modern urologist must be well versed in general pathology, bacteriology, radiology and other auxiliary sciences in order to be enabled to correctly interpret many of the more intricate lesions of the urinary tract. He must know the relationship of the urinary tract to the general system and thus avoid becoming a one-sided specialist. The dignity of the urological specialist and his ultimate and lasting success depend therefore mainly upon a liberal training in general medicine.

With urology is intimately connected the study of the pathology and treatment of the male genital organs, the prostate, testicles, urethra, etc., and so-called andrology is and in all probability always will remain an essential part of the specialty.

Most of our present-day urologists entered into the specialty either from general medicine or surgery and on account of their individual inclinations and preliminary training gravitate more or less either towards the internal or the surgical side of the specialty; the future, though, will demand an equally thorough training in all its diagnostic and therapeutic methods. The future urologist will obtain his special education at urological clinics or hospitals, which will spring up in all parts of the civilized world. Especially all teaching hospitals will soon possess well equipped urological services, which will furnish the teaching material to the chair of clinical urology.

Urology is a border-line specialty; it draws from all sides to accomplish its ends and on the other hand entertains many ties of mutual interest and information with the other specialties as well as with general medicine. The deliberations and discussions of this section should be, therefore, useful and elevating to every member of the mother-society. The future of scientific urology in the West and the success of this section depend not so much upon the efforts and enthusiasm of the few who are more or less specializing in this field as upon the co-operation and continued support of the profession at large.

#### Discussion.

Dr. V. C. Vecki: I do not think it necessary to discuss this paper because it does not bring anything out which we could oppose and I do not think we could add very much to what Dr. Krotoszyner has said. Of course, I thought that when it was promised that we would hear about the past, present and future of urology that he was going to cast a horoscope and tell us something he expects in the future for urology, but in that point I think he has somewhat failed. If we think of the tremendous changes that have taken place in the views of most practitioners and the medical profession in general in looking upon urology, we can expect a great deal from the future if we compare the present with the past. When I came to San Francisco eighteen years ago, a well-known practitioner here tried to advise me in many respects and when I told him my specialty was urology he said, "For God's sake do not tell that to anyone; the people will simply call you a clap doctor." That has changed just as the profession and the public at large have changed their views on that little disease which I mentioned a little while ago. Still the people go on joking about it at times and the fame of a man does not always reach far,—sometimes not further than his own office building. Recently the elevator boy stopped me and said, "Maybe you could tell me something that would be good for a case of gonorrhea," and I said, "You will have to excuse me and I will look it up in the books." While Dr. Krotoszyner has well covered the points looking towards the past he has forgotten some real things that concern urology just as much as the cystoscope, and that is the urethroscope. If we compare the instruments we used to have with the instruments that we have now, we marvel. I remember when old Dr. Gruenfeld, in Vienna, came with his tube in the early seventies and reflected light into the deep urethra, explaining something that looked like a piece of raw beefsteak; and he saw things that no one else could see and the people were almost justified in saying that there was no such thing as the urethroscope. But now with Swinburne's, Goldschmidt's and Buerger's we can see things that otherwise could only be seen in the anatomical dissection. I think that the urethroscope combination with the cystoscope in showing us the things in the living subject as well as any anatomical chart can picture them will bring urology more to the foreground and the progress urology has made compares favorably with that of any other branch of the medical science.

Dr. Geo. Lee Eaton: I can only reiterate what Dr. Vecki has portrayed in regard to Dr. Krotoszyner, who has drawn a vivid portrait of urology



from time immemorial to the present; he has gone into detail and has told us what the old school taught us, but he has not told us what we may expect, or in other words the horoscope of the future. This would be a hard thing to tell, and I look upon Dr. Krotoszyner as an able practitioner in that line, because the opportunities are so great in urology and genito-urinary work that no human mind at the present can foretell what the future will bring forth if we measure it by what has been done in the last few years. New instruments daily are being made and daily we read of new methods in the journals; the old books have passed as the old instruments have; they are curiosities and in time will be placed in the curiosity shop, as the instruments that were used by Babylonians. We are looking forward to the future; every man is weighed by his capacity to go into deeper work, and I believe the urologist of to-day, as recognized, will not be the urologist of tomorrow. This branch of medicine opens up a field to every young man. I believe that we are going to be able to transplant successfully kidney tissue so as to overcome the lack of functional capacity, that we often hesitate in the present time in the removal of a kidney for fear that the other will not be able to functionate properly. We are borderline specialists, we are dependent upon the neurologists and the gynecologists, but the time will come when we have so perfected ourselves that gynecology will be a misnomer, as our mistakes are often those which make the gynecologist.

Dr. Chester J. Teass: I did not come here this evening with the intention of discussing any paper, but since you have done me the honor to call upon me, I would like to say a few words on urology in relation to the general practitioner, as I am no specialist, having done general work most of the time for the past thirteen years. I think there is no question of the vast importance of the subject, and that every man in the general practice of medicine, particularly those doing surgical work on the kidneys, should familiarize himself with examining the interior of the bladder and catheterizing the ureters, for only after such knowledge as is thereby gained, is any operative procedure on the kidneys at all warranted.

I have in mind a recent case that came to Cooper Medical College in the service of Dr. Somers, in which one kidney had been removed a few months since by one of the well known surgeons of the town, and upon examination we find the remaining kidney badly diseased, giving rise to general symptoms; that means it will be a matter of time before the patient reaches a fatal termination. There is no doubt but that this kidney was diseased at the time of the removal of its mate, which should have been determined by a careful ureteral catheterization, and thus have avoided an unnecessary operation, which is always to the discredit of general surgery. Even though the kidney that was removed was badly diseased, in all probability some part of it was functioning, which would have been that much of an aid to the remaining diseased kidney.

Most of the cases of to-day are done by the so-called water method, and we hear nothing of the dry or air inflation method, but while I was on a recent visit to the East and Europe, I stopped at Baltimore to visit Dr. Howard Kelly, and one morning he took me into a private room, where he had a woman on the table, and exclaimed, "I wish to show you how dramatic this procedure can be made." Suiting the action to the word he placed a cannula into the urethra allowing the air to rush in and distend the bladder; he now rapidly located the orifices of both ureters, stepped backward four feet from the patient to where he had the catheter lying on a table, picked up a catheter between his thumb, middle and index fingers, took a quick step towards the patient, and quickly and most skillfully shot the catheter up to the kidney pelvis, repeated the operation on the opposite side. The whole procedure did

not consume much over a minute of time after the patient's bladder had become properly inflated with air. But as we all cannot be Howard Kellys in this field of work, we must adopt any method that we can be the most successful with.

Dr. M. Krotoszyner: The address just read was intended for the medical profession in general. Therefore, I purposely omitted to dwell upon the advances made of late in the perfection of special urological instruments like urethroscopes, instruments for intravesical therapy, etc. There is no doubt that Goldschmidt's water-urethroscope marks a decided step forward towards making endoscopy of the posterior urethra an exact diagnostic method and I am glad that this point was brought out in the discussion. As regards the reading of the horoscope for the future of urology I am convinced that that part of my paper was sufficiently exhaustive. I did not wish to enter into any speculations upon the future development of our specialty. I have outlined the possibilities of urology as a border-line specialty in relation to general medicine and its importance for teaching purposes. If these prophecies will come true in San Francisco and on the Pacific Coast during our years of activity I am sure that all of us will have good cause to be well satisfied. It is to be hoped that the proceedings of this Section will be of definite value to the general practitioner and incidentally arouse in him a continued interest for scientific urology.

#### Epididymotomy in Gonorrheal Epididymitis.

By LOUIS GROSS, M. D., San Francisco.

While the general recognition of the value of epididymotomy in the treatment of gonorrheal inflammation of the epididymis awaits the education of a conservative medical fraternity, it is conceded by all those performing the operation that the results are uniformly successful.

Two years ago the writer presented a paper on the same subject before the San Francisco branch of the American Urological Association, wherein ten cases were reported, and since that publication, the writer has had no cause to alter his previous ideas of its value, or the technic pursued, but, on the contrary, feels that it is an operation that should be undertaken more often and predicts that the majority of cases will, in the future, be surgically treated.

**History.** Puncture of the epididymis and tunica albuginea have been practiced many years; Pirogoff in 1852 punctured the testicle for orchitis, at that time the writers making no distinction between orchitis and epididymitis. In 1863 H. Smith incised the tunica albuginea in 1000 cases, resorting to it because of an erroneous diagnosis of abscess of the testicle; Spencer Watson in 1867 punctured the tunica vaginalis in 20 cases, particularly when effusion was present, this showing that puncture of the epididymis is an old method but one that had never become very popular. In Germany its revival began when Baerman in 1903 described 28 cases; Schindler also helped to resurrect this procedure. In this country, Belfield in April, 1905, published an article on "Pus Tubes in the Male and Their Treatment," advocating the operation of drainage of the epididymis, and in January, 1906, Bazet, in an article on "Epididymitis Based on Sixty-Five Cases," advised epididymotomy in all cases. In October, 1906, Hagner, working independently, introduced his method by reporting a series of six cases.

**Operative Procedures.** The following are the different methods of procedure: Belfield follows the plan of opening the canal of the vas and injecting the proximal duct with a silver compound.

Bazet's technic is as follows: He chooses the ligamentum scrotale for the incision, seizes firmly the swollen indurated nodule of the globus minor of the epididymis in the left hand and an incision one inch long is made downward into the cavity of the epididymis. He then exposes the nodules, relieves the

tension and punctures the nodules, if pus is present, and stitches the walls of the epididymis to the skin. He packs the wound with gauze impregnated with 1 to 10 ichthyol and glycerin and supports the organ.

In Hagner's operation, an incision is made 6 to 10 cm. in length at the juncture of the swollen epididymis and testicle through the scrotum down to the tunica vaginalis, which is opened at the juncture of the epididymis and testicle. After the serous membrane is opened all the fluid is vacuated. The epididymis is then examined and multiple punctures made through its fibrous covering, especially over those portions where the enlargement and thickening is greatest. The knife is carried deep enough to penetrate the thickened fibrous capsule and enter the infiltrated connective tissue. If pus is seen to escape from any of the punctures, the opening is enlarged and a small probe inserted in the direction from which the pus flows, and with a fine-pointed syringe, the cavity is washed with a 1 to 1000 solution of corrosive sublimate, followed by a normal salt solution. A cigarette drain is used. A continuous catgut suture closes the tunica vaginalis and a lock-stitch horsehair suture the scrotal skin. Moist bichloride of mercury dressings and a scrotal support to the testicle complete the process.

Dind and Metraux's method of procedure is to "pull the scrotum over the pubes, holding the lateral surface of the epididymis between the thumb and index finger of the left hand and incising the skin thus made tense. The incision is started over the tail of the organ and is prolonged according to indications, differing in each case, rarely extending to the head. The incision, made layer by layer, finally reaches the purulent focus, which is wiped out with gauze or scraped with a dull curette."

Schindler introduces his trocar for a distance of about 4 cm., puncturing from the tail upward or wherever the presence of an abscess may be felt, while Bruck, at the suggestion of Neisser, has adopted a simple incision into the tunica propria, without entering the epididymis itself.

The Germans, as a rule, use simple puncture, although there are some like Boross who incise. Ernst punctures the nodules with a Luer syringe and penetrates 1 to 2 cm. deep into the substance of the globus minor and aspirates, and he claims that one puncture, as a rule, is all that is necessary; although he has been forced to perform the same process a second or even a third time.

The writer still adheres to Bazet's technic and finds it most satisfactory. An incision is made in the globus minor sufficiently deep to penetrate its canal; a probe is introduced up the body of the epididymis for an inch to an inch and a half, and the walls of the globus minor sutured to the skin. It is rarely necessary to open the tunica vaginalis since the serum present is rapidly absorbed unless a large amount is present.

**Anesthesia.** As a rule, the Germans use neither general nor local anesthesia and claim there is only a "minimum of pain if performed properly"; yet, notwithstanding this statement, the writer would hesitate to operate without an anesthetic.

The American surgeons use general anesthesia and the writer has used ether, nitrous oxide and local anesthesia, but would not advise local as one cannot obtain the necessary freedom from pain. Ether or nitrous oxide should be used, with preference for the latter.

The following cases are of interest: Case 1. J. P. C., age 20, clerk, single. Consulted me April 20, 1910. The last three years he has had gonorrhea. Does not know whether this is a new or latent infection. He has been treated by an Oakland physician for the last fourteen days for epididymitis, with ichthyol ointment and rest, but is still suffering. There is some frequency of urination, diurnally, no tenesmus, no hematuria. On palpation, the left epididymis was found enlarged and painful. Four glass tests show cloudiness in all glasses. Discharge

profuse and loaded with gonococci. Prostate sensitive to touch, enlarged and expressed secretion contained numerous colonies of gonococci and leukocytes. Epididymotomy was advised and Dr. Chas. Pauson was called to administer nitrous oxide anesthesia in my office. After resting an hour, the patient took street car from office to his home, returning to the office next day and reporting himself very comfortable. Vas deferens much reduced in size. April 26th, 6 days later, all treatment of epididymis discontinued.

This case is recorded for the following reasons: Simplicity of operation, the rapidity of relief of pain and the brevity of duration of illness.

Case 2. H. C., 40 years old, married, secretary. Consulted me March 15, 1911, for an acute gonorrhea, involving anterior and posterior urethra and prostate. Refused to go to bed and was treated until May 3, 1911, when he was forced to rest on account of a left side epididymitis. Operation refused. In bed 12 days. Is better (May 30, 1911) but still noticed some slight aching in epididymis, while the urines are still cloudy.

This case is reported to contrast the time in convalescence in the operated and unoperated case, and further, had this case been operated, I could not hesitatingly say that by now the prostate would have resumed a normal state.

Case 3. G. B. P., age 25, single, jeweler. Jan. 17, 1910, no luetic history, gonorrhea and chancroid five years ago. Present illness began two days ago. Diagnosis: Acute anterior and subacute posterior gonorrhea. Ten days later, on Jan. 27, 1910, noticed blood at end of urination. Jan. 28th, urination still bloody, sent to bed. Feb. 4, 1910, left epididymitis; operation refused. Remained at rest in Mt. Zion Hospital, light diet, antiphlogistic treatment, temperature varied from 99° to 102.8°. On the 14th day temperature highest and on 15th day of rest (Feb. 19) was operated and left epididymis opened and drained. On Feb. 25th, 6 days after operation, was discharged from hospital. Twenty days later (Mch. 17, 1910) right epididymitis. Operated upon and removed to his home the following day. On Sept. 19, 1910, few motile spermatozoa found in semen. I may add that the prostate was much reduced in size after each operation.

This history is presented to show that an epididymotomy does not cause sterility.

With the 10 cases reported previously, the writer now has 25 cases, the results of which are very gratifying, and this operation must have a definite place in surgery.

Hagner operates in only 10%, while Bazet in all of his cases. Baerman advocates early puncture, even in the presence of extremely acute symptoms. Schindler recommends that every case of epididymitis accompanied by fever should be treated by puncture. Houssian says it should be done in every case with severe inflammation, in chronic cases and in cases with recurrences.

The writer is more radical now than he was a few years ago, and although he does not advocate it in every case he feels it should be done in the majority of patients suffering from epididymitis. When you consider not only the reduced number of days of confinement to bed (Heinze claims in his series of cases, with operation there were 299 days, while without operation there were 529 days of confinement to bed, a gain of 43%); when you consider the rapidity of convalescence in its favor, for the prostate and seminal vesicles are restored much more quickly after operation; when you consider the rapidity of relief of pain and the disappearance of fever, in fact, it is an operation favorable from all points of view and of incontestable superiority, therefore everything considered, the writer feels it should convince the skeptical as well as the conservative practitioner.

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### Discussion.

Dr. J. C. Spencer: I believe Dr. Krotoszyner was present at a little meeting in Dr. Chismore's office when Dr. Bazet read a paper upon epididymotomy. My attention was called to this operation on that occasion for the first time. I must admit that it did not appeal to me very strongly, the operation being as has been fully described to you by the reader of the paper and my attitude to it was a conservative one. I have tried to keep myself au courant with the progress recorded for the relief of epididymitis and as time has gone on I have found that the subject of vaccines has assumed greater and greater significance. My experience with epididymitis has practically been summed up in a paper which I read in this room several months ago and the standpoint I took then is the one I see no reason to change. I use the autogenous vaccines, supplemented with the use of saturated solution of sulphate of magnesia, applied constantly to the scrotum covering the inflamed epididymis and testicle, and when I see, as I have in a limited number of cases, treated with vaccines, the symptoms all resolve in 48 hours at the outside, I am not tempted to take the knife and make an incision into the inflamed epididymis. I have witnessed the sudden drop of the temperature and relief of agonizing pain, and to make an incision in this region, which is undoubtedly a region difficult to keep clean in a surgical sense, is hardly to be compared with the prompt and comparatively simple method of injecting with autogenous vaccines. According to the paper just read, the minimum period of convalescence of these cases is about 6 days and this can hardly be compared even with the simplicity of acupuncture, which, with aspiration, relieves the tension and so relieves the symptoms of the lesion and is far simpler than the incision. It is for this reason that I cannot see my way clear to subjecting a patient to a serious surgical operation and making quite a formidable affair of what need not be more than an injection of the vaccine.

Dr. Geo. Lee Eaton: In discussing the problem of epididymotomy the great question to consider is: are we going to produce sterility, if the testicle be left alone for Dr. Spencer to treat by his method and possibly have sterility, then as a matter of fact if Dr. Gross can produce in a sterile subject by epididymotomy, spermatozoa in the secretions, then I believe the question is on the side in favor of Dr. Gross. But let us look at it in a scientific way; if you have pus tubes in a female after opening the belly and you find the slightest inflammatory process in the tubes due to gonococcus, the tubes and ovaries are generally removed; if that be right in the female, well then, let us take this argument for the male. If we can produce a virile subject by epididymotomy let us use the knife. The question of the day is, that sterility is being predominantly produced by infection of gonorrhea, both in the female and male, and it is our scientific hopes to bring them back to the normal state as near as possible. It would appear that Dr. Gross depends entirely upon the surgical method. It would seem wise that if the doctor at the time upon opening the epididymis and the finding of pus, if he would go a step further and make a culture of that pus, grow the bacteria, make a mixed vaccine and inject it into the individual. The doctor has no guaranty that the prostatic follicles and vesi-

cles are not infected with some other micro-organisms than the gonococcus that may lend a helping hand to the production of the epididymitis and by carrying his method a little further he would ultimately eradicate all of the micro-organisms that go to produce the epididymitis. There still remains a question in the minds of the genito-urinary specialists whether the epididymitis is solely produced by the gonococcus. I believe that it is the opinion of the bacteriologists, urologists and genito-urinary men of to-day that it is dependent entirely upon mixed infection; so that wherever you have epididymitis the question of vaccines is well taken by Dr. Spencer, but if Dr. Gross would only go further and use autogenous vaccines and continue to inject these vaccines I believe that the doctor would be more pleased with his results.

Dr. Harry Spiro: As a general practitioner I believe that it is not always necessary to remove both tubes and ovaries of a female infected with gonorrhea; we can often save both of these organs; even if we do remove the female organs that is no reason why we should do the same thing in the case of a man. As to the question of sterility, I do believe there are many cases of men to-day who have healthy children and who have never had an epididymotomy performed upon them, even though they had an epididymitis.

Dr. Victor C. Vecki: Some years ago I was in the same boat that Dr. Spencer is in to-day, when I listened to Dr. Bazet's paper, and looking from the standpoint that I would not like to inflict upon any of my fellow-creatures anything that I would not want done to myself, I thought it was better to keep on with the old lotions, etc., but I must confess that I have been thoroughly and entirely converted. During the last year every case of epididymitis that came under my hands was operated upon and I am glad to say so because the results were always most beautiful,—almost charming. The first case I operated upon was one that I was at a loss to know what to do because the man did not get well of the inflammation and finally I took him to the hospital and with Dr. Gross's able help, operated upon the epididymis and the result was a most remarkable one. It was a very instructive case because the man formerly had a left sided epididymitis and such a hardening and induration left there that I am positive his left testicle did not functionate any more. He now has very lively spermatozoa; I am sure that had I waited the right testicle would have become as the left was, and the man would have been sterile, which he is not. The last case I operated on was in the French Hospital a few weeks ago. The man had been suffering from a chronic gonorrhea for quite a while and no practitioners or specialists had been able to help him. He was operated on and he now had no discharge, the prostate gland took on its normal size, the testicle reduced in size and the pain was almost immediately relieved and he is now able to do his work. We must not attach too much importance to the finding of spermatozoa a short time after the operation, for it is possible that they did not come from the testicles because it may have been stored in the seminal vesicles for quite a while and not be a new production, so it will take more than a few weeks to really determine whether there is sterility or not.

Dr. Louis Gross: I regret Dr. Spencer has not performed this operation, for had he done so he would have been pleased with the results. In these cases I had used both autogenous and stock vaccines and have obtained no results. I wish to impress the members that this is not an epididymectomy but an epididymotomy, we are only cutting into the epididymis, not removing it. The statistics of cases of double sided epididymitis show sterility, yet in this case of double epididymotomy reported to-night there is no sterility. I do not advise operation in all cases, only the special ones. It is certainly remarkable to

see how quickly the prostate and seminal vesicles resume their normal state after this operation, in contrast to the cases without operation.

#### Report of Cases by Dr. Krotoszyner.

Dr. Krotoszyner reported two cases of kidney colic in connection with herpes zoster. In both cases a typical herpes zoster was observed in Head's peripheral hyper-algetic zone of the kidney. In one case the attacks of kidney colic had been caused by a left-sided hydro-nephrotic sac due to obstruction of the ureter by means of a small calculus. In the other case the attacks were caused by a unilateral nephritis and peri-nephritis in a right-sided stone kidney. In both cases the removal of the diseased kidney was followed by recovery.

These observations will later be published in extenso.

#### Demonstration of Specimen from a Case of Liver Abscess.

By LEO MUNTER, M. D.

Mr. H. H. was first seen by me on July 12th, 1909. At that time he complained of weakness, headache and of perspiring freely, particularly at night, with occasional chills, this having lasted about one week. He also had a slight cough, some little sputum which had a bad taste, and on coughing there was pain in the right chest. He was 53, of good habits, his previous history uneventful, and except for one brother dying of gallstones, the family history was negative.

From July 12 to August 31, the patient was kept in the hospital. During this time he ran an irregular, intermittent temperature, at times up to 106.6 (rectal), with a pulse practically never over 120, and usually of about normal frequency. Respirations were always normal.

Examination of patient showed but slight and inconstant rigidity of the upper part of the right rectus, which made us think of the possibility of trouble in the liver, such as an abscess, or of some renal or perirenal suppuration. Blood examinations showed leukocytes ranging from 14,000 to 30,000 with polys about 88%. Malarial plasmodia repeatedly looked for in fresh specimens at times of chills as well as in stained specimens were never seen. Reports of cases of dysentery being common at this period, the patient's stools were frequently examined but ameba never found. Widal's were absolutely negative. The urine showed large amounts of albumin and casts, warranting at least the diagnosis of a parenchymatous nephritis, and from July 19th to 24th, a marked bacteriuria was present, associated with a pyuria, so that a pyelitis was suspected. On the 9th of August the ureters were catheterized, with negative report.

About this time the patient began to improve, and he attributed this to the presence of a loose cough with a slight purulent expectoration. The patient left the hospital feeling practically well, but he still retained his albuminuria. The most probable diagnosis so far as I could see, was that of a liver abscess, which opinion had been expressed by Dr. Bine, who saw him repeatedly with me while in the hospital. On the other hand, Dr. Kerr, who saw him but once, thought a malarial infection most probable, and quinine was therefore administered, after which no more chills or high fever occurred.

The patient remained well until April 8th, when he began to have about the same symptoms as with his first attack, with the addition of pain in the right infraclavicular region, increased on deep inspiration. He entered the hospital on the 11th, from which time Dr. Bine and I saw him together. Examination again showed a rigidity of the right rectus, with tenderness in this region; but repeated examinations, at times in the hot bath, revealed no definite mass. The chest was negative. Leukocytes, 15,000. Temperature to 102.6 rectal, and was irregularly intermittent. There were no chills. Pulse and respiration were normal. Widal negative. With his illness of 1909 ever before

us, we again suspected a liver abscess but could in no way clinch the diagnosis.

On April 17th signs of effusion in the right pleura led to an exploratory puncture. A few cc. of clear fluid were withdrawn. Cultures and smears were negative.

By the 22nd the signs of effusion were very marked, and the patient's condition worse, so that an empyema was diagnosed, but punctures made in the 7th and 8th spaces withdrew about 300 cc. of clear fluid, these aspirations, as well as the one of the 17th, being interrupted by the appearance of bright red blood.

By the 26th the general condition became very much worse; pulse jumped up and respirations became very rapid. On the 27th exploratory punctures were again made, the 3rd attempt being followed by a spurt of pus; 1500 cc. were aspirated; smears showed numerous streptococci. Two hours later, under local anesthesia, rib resection was performed. The diaphragm was found pushed up, and though the pus cavity seemed well walled off, a needle was inserted into the liver, but without finding pus. The patient stood the operation nicely, but in spite of stimulation, grew progressively worse. On the 28th, not satisfied that all foci had been found, for the signs of effusion were still present anteriorly and less so posteriorly, needles were again inserted through the wound into the liver and also into the pleural cavity and the liver area anteriorly, but without finding pus. Death occurred at 9:15 p. m.

Postmortem performed by Dr. Dickson.

The following extract from the postmortem notes describe the essential lesions. On removal of sternum, large abscess cavity is exposed to right of mid-line. Left lung is small, crowded to left, has practically no fluid in pleural sac, but is bound down by fairly dense adhesions, particularly the lower lobe, especially posteriorly. On passing the hand around the right lung, breaking down the fibrinous adhesions in right pleural sac, a moderate amount of a dirty somewhat blood-stained pus escapes. The adhesions are all recent character except a dense band in axillary line about level fifth rib. The incision opened into a partially walled off cavity, walls of which were covered with fibrino-purulent exudate. On removing the lung, perforation in diaphragm found at summit of the arch on right side. Lung is small, almost completely collapsed, lower lobe alone containing small amount of air. Spleen about twice normal size.

Liver fairly adherent to diaphragm around the region of perforation. Liver very large, soft, somewhat pale. In right lobe, at extremity of dome, is large abscess cavity, about 5 cm. in diameter, walls of which are lined with shaggy fibrino-purulent material. This abscess opened into right pleural cavity through perforation in diaphragm. On the posterior surface of left lobe is large soft and fluctuating mass about size of small orange; on section large amount greenish pus escapes; the walls are lined with smooth, dense fibrous tissue. On cutting from before backwards through the upper abscess a number of smaller abscesses varying in size, up to 1 cm. in diameter, are found in the liver tissue behind it. There is at least 1½ inch of normal looking tissue between these abscesses and the one on the posterior surface of liver.

#### SAN DIEGO COUNTY.

A free clinic and dispensary has been opened in San Diego for the treatment of general medical and surgical cases. The clinic is to be known as the Talent Workers' Clinic, and is conducted jointly by the San Diego County Medical Society and a charitable organization known as the Talent Workers, whose ultimate aim is the establishment of a large general hospital for both charity and pay patients.

Several rooms have been fitted up in the same building as is occupied by the Anti-tuberculosis



Clinic and the Associated Charities of San Diego, which will aid in looking up the standing of applicants for treatment. B. J. O'NEILL, Secretary.

## BOOK REVIEWS

**Examination of the Urine.** By G. A. DeSantos Saxe, M. D. W. B. Saunders Company, Philadelphia, 1910.

That Dr. Saxe's work should so soon have gone to a second edition is not surprising. Among the innumerable books on urine analysis it has a place of its own and supplies a want that has long been felt. What the progressive modern practitioner demands is a description of processes that are really in use and useful. This requirement Dr. Saxe has in every way fulfilled. The obsolete processes are eliminated; those in current use amply described by text and drawings. But the book is much more than a mere manual of laboratory practice; its most valuable feature is a thoughtful analysis of the value and clinical significance of the analytical and microscopical findings. It gives the consensus of expert opinion, and often the personal views of the author; frequently the presentation is new. We would in particular draw attention to the valuable remarks on "Acidity," and the analysis of the "Methods of determining the functional efficiency of the kidneys." The drawings and colored plates are especially worthy of commendation. In particular we would instance the excellent series of plates on the epithelia and on urethral shreds. For the benefit of students, each chapter ends in a number of questions reviewing the subjects therein treated. We know of no other work that in the short space of 420 pages so fully, clearly and interestingly covers the field.

H. D'A. P.

**A Text Book of Chemistry.** For Students and Practitioners of Medicine, Pharmacy and Dentistry by Edward Curtiss Hall, M. S., M. D. Illustrated. F. A. Davis Company, Publishers, Philadelphia, 1911.

The book begins with physics, from the standpoint of the student in Medicine, Pharmacy and Dentistry, thus laying the foundation for the chapter on Chemic Philosophy, which follows; both being preparatory to the essentially chemical part, i. e., Inorganic and Organic Chemistry; the former chapter beginning with the metals, continuing to the salts, and the latter from the hydrocarbons to the proteins. Following the chapter Analysis, which is lucid and well tabulated, are Incompatibility, Sanitary Chemistry, Toxicology, Physiologic, Clinic and Pathologic Chemistry. Each chapter opens an opportunity not only to enter, but to view the subject from the standpoint of the chemist; for students in medicine and allied branches have so many standpoints to occupy, that it is very important that they be clear ones. So much laboratory work is required of the student in these branches to-day that a concise volume on chemistry, which is both clear and comprehensive—if he be limited to one—is welcome for its essential data. The work shows painstaking labor, a knowledge of the subject, and is withal, presented in an attractive way.

FRANK T. GREEN.

**Obstetrical Nursing for Nurses and Students.** Henry E. Tuley, A. B., M. D. Published by J. P. Morton & Co., Louisville, Ky. 1910.

A summary of the practical points about obstetrical nursing, written in good order. Taken from the standpoint of a nurse whose needs it is, of course, meant to supply, it is recommendable; it will hardly suffice, however, for the student of medicine.

C. B. M.

**Diseases of the Stomach and Upper Alimentary Tract.** By Anthony Bassler, M. D. Published by F. A. Davis Co., Philadelphia, 1910.

The subject of diseases of the stomach has been

very ably presented for some years by several authoritative works and it would seem that any new book covering this field should have some special points of merit to justify its presentation. After a rather careful study of the present volume the reviewer cannot feel that it answers this requirement. Aside from a few personal ideas on some subjects, the same ground has been fully as well or better covered by already existing works. This is not to say, however, that the present volume has not merit. The first half of the book is taken up with a discussion of the anatomy and physiology of the upper alimentary tract; the various methods of examination in general use and a discussion of the various methods of treatment. The author lays great emphasis on laboratory examination, rather more in some conditions than seems justified by the sum total of information to be obtained. He seems to feel that the determination of the combined acidity of the gastric contents is decidedly important and yet recommends for its estimation the Alizarin method, which is notoriously inaccurate. The chapter on the Roentgen ray examination of the stomach is quite good and is accompanied by a number of excellent reproductions of bismuth plates.

The second half of the book is taken up with a discussion of the diseases of the upper alimentary tract. In general this phase of the subject is well presented. The chapter on the esophagus seems rather inadequate and the subject of gastric tetany receives too scant attention.

In the article on syphilis of the stomach is described the technic of the Wassermann test, which seems unnecessary in a book of this nature.

There are some excellent plates of specimens of carcinoma of the stomach. In general, it may be said that the author's style is rather involved and does not make easy reading. The very glossy paper used makes reading by artificial light very trying.

H. W. A.

**The Principles and Practice of Dermatology.** By William Allen Pusey, A. M., M. D. D. Appleton, & Co., 1911.

Four years is but a short interval between the first and second editions of Dr. William Allen Pusey's text book on the Principles and Practice of Dermatology, but the excellent portrayal of the new knowledge gained in the subject of skin diseases, and progress has been extensive in the last few years, fully justifies this late edition. The book merits most careful consideration among text books on dermatology, and now that we cannot look forward to later editions of the works of Crocker or Hyde it is a great satisfaction to feel that one of the younger men can help supply the want.

Pusey's treatment of the subject is most satisfactory. The one hundred and sixty-eight pages devoted to the Principles of Dermatology would make an excellent handbook if published separately for the use of dermatologists in particular. And the Practice of Dermatology is so complete, and as nearly up to date as possible, that no physician will regret considering this new book an excellent one for reference, as the illustrations are all good, and the reading matter is not tiresome. Although the book contains over 1000 pages in one volume, in its cloth-bound form, it is not cumbersome.

G. D. C.

**Hydrotherapy.** A Treatise on Hydrotherapy in General. Its application to special affections, the technic or processes employed and the use of waters internally. By Guy Hinsdale, A. M., M. D., Octavo 466 pages illustrated. Philadelphia and London. W. B. Saunders Co., 1910. Cloth, \$3.50.

The writer's intention to produce a practical work has been ably fulfilled, being a complete reference book, especially for the student and general practitioner. The author has shown, in the preparation of the book much research work and gives due credit

to the various leading authorities. The subject is treated in a concise, clear and practical manner, showing that the action of water, both internally and externally, is based on rational scientific principles. The illustrations are excellent, giving a definite and correct idea of the approved methods of employing hydrotherapy. A considerable space has been devoted to the use of waters internally, both in health and disease. He strongly advocates the obligatory study of hydrotherapy in our medical schools and quotes in full Dr. Simon Baruch's excellent paper on this subject.

N. S.

**Public Hygiene.** By Thos. S. Blair, M. D.; 2 vol., illust., 664 pps. The Gorham Press, Boston.

Public Hygiene, the science of the conservation of public health, is, to-day, probably the most important and most attractive branch of medical science. The subject as usually presented in textbooks is apt to be dry and uninteresting to the average practitioner who may not care for figures and formulae. Blair's work reads like a story book and contains a wealth of observations together with practical suggestions that may be acted upon to great advantage in innumerable localities. It has the further distinction of considering the subject in its living relation to the public and shows the difficulties encountered by the sanitarian in the practical application of his principles to the community; for, it is not sufficient to possess the principles underlying the prevention of disease nor to have the requisite laws, but these principles and these laws must be enforced on a more or less obstinate and refractory public and they must be enforced in such a manner as to make friends and apostles for sanitary work.

The book opens with the treatment of the difficult question of home quarantine in the urban and in the rural community; the sanitary aspect of hotels, lodging houses and public dwellings, with interesting details of the best examples of each type. Then comes a chapter on school inspection and college sanitation including suggestions for following the lead of the London School in establishing special courses in sanitation and providing for a post-graduate degree of Doctor of Public Health. As a matter of fact the recounting of the mere headings of chapters reads like an encyclopedia on sanitation. "Places of amusement and dissipation" is the heading of a chapter which contains a discussion of our own burning question, "The Municipal Clinic."

One of the best portions of the entire work is the consideration of State Departments of Health and City Boards of Health. This is well worth the study of any one interested in sanitation, as the distinguishing features of each State Board are given, together with the various forms of management of City Health Boards. This is followed by a discussion of a proposed Federal Bureau of Health in which the author demonstrates the value of such a bureau as a means of standardizing and co-ordinating the work of the various state boards. The United States Public Health and Marine Hospital service is at present fully equipped for undertaking such duties and would merely require to increase its personnel in the same manner in which it obtains its officers at the present time; within a few years there would then be in the United States a corps of sanitarians second to none in the world.

The sanitary questions involved in the establishment and maintenance of camps and in the construction and handling of war vessels are written by competent officers of the army and navy.

Pure foods and drugs, public carriers, etc., are given the full consideration due these respective subjects.

G. M. C.

**"Inebriety."** By T. D. Crothers, M. D., Superintendent Walnut Lodge Hospital, Hartford, Conn.

We have read with a great deal of interest a book on Inebriety by Dr. E. B. Crothers, just issued by the Harvard Publishing Company, Cincinnati, O.

Considering the dearth of scientific books along this line, Dr. Crothers is to be commended for covering the field so thoroughly; he begins his subject before the period of Christ, making it clear that inebriety was then recognized as a disease and serious efforts were made to cure such cases with surprisingly good results. He also shows the evil of an excessive use of alcohol at that period just as it exists to-day.

Through the recognition of inebriety as a disease, its many forms and classifications made clear, and the methods set forth for the relief of this condition, this book will be the means of many physicians taking up this branch of medicine as a specialty, and ultimately result in the saving of many lives and restoring the mental condition of many people who are now considered as useless members of society.

The chapter on the state care and treatment of inebriety is well covered and is earnestly recommended to the lawmakers and officers of charitable institutions of this state in the hope that through their efforts such an institution will be established.

Hyoscine is used by some to induce sleep and quiet in acute alcoholism, but much harm is the outcome and I heartily concur with Dr. Crothers, in that the use of hyoscine is of no benefit in such conditions, is decidedly harmful at this period of the disease and should not be used, particularly in large doses.

Considering the fact that this work has been done almost exclusively by the charlatan and quack, and completely ignored by the regular physician, it is to be hoped that this edition of Dr. Crothers' book will soon be exhausted, as it can be profitably read by every physician and student.

R. E. B.

**Therapeutic Action of Light.** By G. E. Rogers, M. D. Published by author, 1910.

Dr. Rogers claims to have discovered a ray called the "Rho" ray which is produced by carbon filament incandescent lamps of over 600 candle-power, and it is the therapeutic power of this light-ray that he discusses in his book. Great results in the treatment, not only of superficial lesions such as skin diseases and epitheliomata are claimed, but also in the treatment of more deeply seated lesions, as in pneumonia, phthisis pulmonalis, rheumatism and other joint affections, syphilis and acute inflammations of the appendix, middle ear, bladder, meninges, uterus, etc., etc. While the results are reported as excellent, it would, perhaps, be wiser to suspend judgment until other investigators have added corroborative evidence.

G. H. T.

**The Prophylaxis and Treatment of Internal Diseases.** By F. Forchheimer, M. D. Second Edition. Published by D. Appleton & Co., New York. 1910.

"Learn to administer that drug which is followed by the best results, i. e., by prompt action and the minimum amount of damage—and use this drug until satisfied that something better has been offered. In adhering to one drug, the administration and effects of which are thoroughly understood by the physician, both he and his patient will fare better than by taking up the new unknown drugs, whose number promises to be without end."

Such is the sound advice of Forchheimer in the second edition of his excellent work on the prophylaxis and treatment of internal diseases. The first edition has been thoroughly revised and many subjects amplified. Much which is conservative has been added in the way of organo-therapy. If we were hypercritical, a criticism might be made of the large amount of space given to, and the arrangement of, the subject of prophylaxis. We might also suggest that the author could have been more specific as to the indications for increase of dosage, and change of drugs in the treatment of certain diseases. In the teaching of internal medicine, case reports have assumed an important role, and we anticipate that in the near future, the authors of our text-



books on the treatment of internal diseases will employ the same method. In general, we can highly recommend the work and wish it the success it deserves.

**Hydrotherapy.** By Geo. K. Abbott, M. D. Published by College Press, Loma Linda, Cal.

The field of hydrotherapy is so well covered by several excellent text books already in existence that one takes up with a feeling of surprise a new work on this subject by George K. Abbott, Dean of the Faculty and Professor of Hydrotherapy and Practice of Medicine in the College of Medical Evangelists, Loma Linda, Cal.

It is fitting, perhaps, that the new publication in this well occupied territory should emanate from a new medical school in a state already as well supplied as this one, since our surprise over the work in hand is lost in wonder at the establishment of the new institution and in speculation as to what it can possibly add to the overstocked field of medical education in California.

The justification of the work is probably contained in its dedication: "To those who are seeking to be co-workers with the Great Physician in the healing of disease by the use of Nature's remedies." The implied reproof to those who are healing disease by unnatural remedies, whatever they may be, is not lost and is doubtless well deserved, but one cannot help wishing that the co-workers with the Great Physician did not have to be taken through a rapid review of physics, chemistry, anatomy and physiology, not forgetting a chapter on nitrogen metabolism before coming to the subject of hydrotherapy in the latter half of the volume.

The chapters on anatomy of the skin, physiology of the circulation, metabolism and so forth, contain many important facts to be found more elaborately dealt with in text books on those subjects, but their inclusion unfortunately conveys the impression to the unprejudiced observer that the co-workers with the Great Physician at Loma Linda may possibly have neglected some of the prerequisites of a medical course.

After the elaborate introduction one is not unprepared to be supplied with a short résumé of pathology, etiology, diagnosis and treatment of the various diseases mentioned as benefited by hydrotherapy: when, however, hydrotherapeutic measures are finally discussed, the information is, upon the whole, so correct that one cannot help wishing that the author had expended all his energies upon the subject of his treatise.

One regrets that he thinks it necessary to cinch his conclusions by citation of experimental data. In the last decade the subjects suited and unsuited to experimental investigation have been so thoroughly overhauled that the general literature resembles Holy Writ in one way at least, in that one may find, if he searches, apparent justification for almost any theory under the sun; and as even Holy Writ is said to be quoted by a certain unpopular individual for his own ends, it would perhaps be better to omit reference to experimental work which cannot be said to be thoroughly conclusive.

So much ground has been covered in a volume of less than three hundred pages, that it is to be expected that the print should be small and illustrations lacking.

The book is from the College Press, Loma Linda, California. L. S. M.

#### THE USE OF DIGIPURATUM IN HEART DISEASE.

William F. Boos, L. H. Newburgh and H. K. Marks in a paper published in the April issue of the Archives of Internal Medicine, discuss the great differences observed in the pharmacological strength of digitalis leaves and their preparations. The ef-

iciency is said to depend greatly upon the soil, the gathering season, the method of collecting and drying the leaves and the methods used in preserving the dried product. For a time it seemed as if the pure active principles of digitalis would be reliable substitutes for the chemical preparations, but it was soon evident that neither digitalin nor digitoxin alone could produce the true digitalis effect obtainable from the leaf preparations. These facts show the need of leaf preparations of known strength. As the fluid preparations do not retain their original strength so readily, the dry standardized products are preferable. In digipuratum, a dry digitalis extract, was found free from the harmful digitonin and 85% of the bulky and inactive matter. The drug is standardized by means of the frog experiment so as to be equal in strength to the equivalent amount of potent leaves, this strength being uniform.

Digipuratum was employed extensively by the authors in the medical services of the Massachusetts General Hospital. Eight cases are quoted and tabulated, showing interesting features. The diuresis was efficient in all cases and a marked effect on the pulse rate was usually present. One case was sent to the hospital in a moribund condition but reacted very quickly to the drug, so that compensation was re-established in a week. The digipuratum was usually given in the form of treatment of twelve tablets each and while in some cases the first treatment gave little or no result, the second was always very efficient. Good results may often be obtained by combining the medication with venesection, the removal of fluid by tapping or by combining the digipuratum with other drugs, such as diuretin or apocynum.

Digipuratum has now been used in the Massachusetts General Hospital for over a year and more than 180 cases of primary heart disease or secondary cardiac involvement have been treated with it. The effect on the urinary output has been very prompt in most instances. There was not a single case of vomiting or diarrhea; in fact the vomiting of a number of cardiac cases at entrance was promptly stopped by digipuratum. Cumulative poisoning was never observed. One of the early patients, a boy of 16, was given 106 tablets in six weeks; at no time was there any suggestion of digitalis poisoning. In one or two instances, the house officers were made uneasy by sudden drops of forty or more beats in the pulse rate, but no disagreeable consequences followed in any case. It must be remembered, naturally, that digipuratum is a digitalis preparation, but the tendency to produce poisoning is much diminished so that it is possible by means of this drug of reliable strength to push digitalis therapy in a manner hitherto unknown.

#### TRANSLATIONS AND ABSTRACTS.

To the Editor of the State Journal. During the last four years that I have been going to George Washington Medical School, here in town I have done a great deal of abstracting and translating of medical literature, for various physicians who were interested in following up certain cases and reports of different investigations, which work involved pretty nearly every branch of medicine and surgery, as well as necessitated a thorough acquaintance with practically every publication of importance, both domestic and foreign.

Having now graduated I now intend to continue this work on a much larger scale and beg to call your attention to the following points: (1) I have received a thorough college education with the degree of A. B., so that my work is not only scrup-

tifically correct, but is of good literary taste, as well. (2) I have graduated from our medical school at the head of my class, having received both the highest honor and "with distinction." (3) No better place exists for research work in the medical literature than Washington, D. C., where the Surgeon-General's Library—the best medical library in the world—possesses every text-book and periodical, no matter where or when published. (4) Doing my own abstracting from French, German, Italian, Spanish, Russian, Hungarian, Swedish, Danish and Dutch, I do not employ any other translators and thus am able not only to ensure the high standard of the work but also do it cheaper. (5) My work is indorsed by such men as Dr. J. Wesley Bovée and other prominent physicians and surgeons.

I therefore take the liberty of asking you to help me make this letter known to such physicians in your state as might be interested in the kind of work I do.

Any suggestion as to means of getting into communication with physicians of your state will be heartily appreciated.

Sincerely yours,

ARTHUR A. EISENBERG,  
Garfield Memorial Hospital,  
Washington, D. C.

#### MARIE FEODOROVNA PRIZE COMPETITION TO BE HELD IN CONJUNCTION WITH THE NINTH INTERNATIONAL RED CROSS CONFERENCE, 1912.

##### Subjects for Competition.

1. Organization of the methods of evacuation of the wounded on the battlefield, comprising as complete an economy as possible in litter bearers.
2. Portable (surgeons') washstands for war.
3. Methods of packing dressings at the aid stations and in the ambulances.
4. Wheeled stretchers.
5. Carriage of stretcher on mule-back.
6. Folding stretcher easily portable.
7. Transport of the wounded between war vessels, hospital ships, and the coast.
8. The best method of heating railroad cars by a system independent of steam from the locomotive.
9. The best model of a portable Roentgen apparatus, permitting utilization of X-rays on the battlefield and at first aid stations.

##### Prizes.

- 1 First Prize of 6000 roubles (approximately \$3,000).
- 2 Second Prizes of 3000 roubles (approximately \$1,500) each.
- 6 Third Prizes of 1000 roubles (approximately \$500) each.

##### When and Where to be Awarded.

Inventions entered in this competition are to be displayed at an exhibition to be held on the occasion of the Ninth International Red Cross Conference at Washington, D. C., May 7-17, 1912.

All persons intending to compete for these prizes must forward to the Chairman of the Exhibition Committee, at the above address on or before December 31, 1911, a statement of such intention, giving the number of cubic feet which will be required for the exhibition of their inventions.

Articles entered in this competition must be received, carriage prepaid, at Washington, D. C., on or before April 15, 1912.

Full particulars and conditions as to delivery and removal will be supplied in good time to inventors who give notice of their intention to compete.

Further information, if desired, may be obtained from the Chairman of the Exhibition Committee, War and Navy Building, Washington, D. C.

#### LOST OR STOLEN.

Between Friday, June 30, 1911, and Saturday, July 1, 1911, there disappeared from the Scientific Exhibit of the American Medical Association meeting on the fourth floor of the Hamburger Building at Eighth and Broadway, Los Angeles, California, one microscope which was loaned by Dr. Charles E. Atkinson, 700 East 25th Street, Los Angeles, California. This microscope was a Bausch & Lomb make and was numbered 69,534, being a BB 8 type with a mechanical stage. Dr. Atkinson purchased this microscope from the Pacific Surgical Company of Los Angeles, paying \$93.30 therefor. We do not know whether this microscope was lost, strayed or stolen, and are sending out these notices in order to get some information concerning it. Your co-operation will be appreciated.

Very truly,

GEORGE H. KRESS,  
Secretary Executive Committee, 240 Bradbury  
Building, Los Angeles, California.

#### PSYCHO-THERAPY.

Siegfried Block and Prince C. Hopkins have started a new phase of psycho-therapy. They are attempting in a strictly ethical and scientific manner to introduce this matter to the medical profession about the same way it is done in the various centres of learning of Europe. One is a psychologist and the other an alienist and neurologist.

They will treat only recommended patients, using all of the psycho-therapeutic methods now in vogue, including Freud's Psycho-Analysis, Block's Relaxation, Hypnotism, memory and association tests, etc. They are especially desirous of receiving such cases as the various hysterical manifestations (choreics, tics, phobias, paralytics, psychasthenics, egos, stutterers, stammerers, hallucinations, fields,—alcoholic and morphinists, etc.).

The idea is novel in that one man in each branch will attempt to combine psychology and medicine. They have established offices at Hotel Astor, 44th street and Broadway, and have hours on Saturday afternoons from 2 until 5 o'clock.

#### NEW MEMBERS.

Carpenter, F. L., Berkeley.  
Lackey, H. J., Oakland.  
Mugler, F. R., Oakland.  
White, J. T., Oakland.  
Boyer, H. R., Oakland.  
Anderson, P. J., Berkeley.  
Fitzgibbon, F. F., San Francisco.  
Crediford, D. B., Rialto, Cal.  
McSwain, T. O., Visalia, Cal.  
Burchard, E. A., Lodi.  
Young, J. Audley, Oakdale.  
Endicott, E. E., Jackson.  
Gnekow, E., Stockton.  
Brown, V. de P., San Francisco.  
Berger, Albert, San Francisco.  
Linforth, Grace, San Francisco.  
Somers, H., San Francisco.  
Tillman, F. J., San Francisco.  
Tillman, T. E., San Francisco.  
Bigelow, C. L., San Francisco.  
Felt, Rae, Eureka.  
Scott, W. P., Bakersfield.  
Worthington, Lois, Bakersfield.  
Jordan, A. B., Wasco.  
Yates, H. N., Pacific Grove.  
Watson, V. B., Castroville.

#### DEATHS.

Cook, J. B., Los Angeles.  
McCarthy, D. A. S., Hemet, Cal.  
Walsh, W. J., San Francisco.  
Rice, Weston H., Oakland.  
Fargo, Jno. F., Los Angeles.  
Frisbie, Edw. G., San Francisco.



# California State Journal of Medicine.

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All Scientific Papers submitted for Publication must be Typewritten.

Notify the office promptly of any change of address, in order that mailing list and addresses in the Register may be corrected.

VOL. IX SEPTEMBER, 1911. No. 9

## EDITORIAL NOTES.

The Secretary of the Society and the Editor of the JOURNAL is tired, very tired. He has been ordered away to take a complete rest and to think as little as possible about the Society, its work or its JOURNAL. The Council has granted him a leave of absence for some months and the Publication Committee has kindly undertaken to look after the publication of the JOURNAL, under temporary editorship of Dr. D'Arcy Power. The work of building up and conducting the Society's affairs, while it has been at times hard and has involved a good deal of worry during the lean years, has also been most pleasant; to see something of real value grow from almost nothing has been a keen pleasure. Therefore, it is not without a distinct feeling of sadness that the Secretary-Editor obeys the instructions of his physician, closes his desk and leaves his office, to take the first real vacation in twenty years. To every member of the Society who has helped—and many have helped more than they know—the Secretary-Editor wishes to extend his thanks. To every member who feels that at any time he has been slighted or unkindly used, the Secretary-Editor wishes to extend his sincerest expressions of regret that such occurrences should be, and to offer the assurance that everything that has been done by him has been done for the good of the Society, as he saw it, and never for personal reasons. To the Publication Committee, and to Dr. Bering, who will act as Secretary pro tem., the Secretary-Editor wishes to extend his thanks, in advance, for their kindness and consideration in taking upon their shoulders this work.

It is nearly a year since Drs. Carrel and Barrow published an account of their remarkable studies of the growth of animal tissues in vitro. To the imagination the results suggested startling possibilities

which the lay press has duly appreciated, and already our patients are enquiring whether liver and bacon grown in a jar is really as delectable as the same article abstracted from its owner. The value of a discovery is sometimes overlooked in the reaction against extravagant anticipations, and this may easily happen in this case. Let us glance for a moment at the facts and the reasonable possibilities. The experimenters using frogs, cats and dogs, found it possible to grow most of the tissues and the parenchyma of many of the glands of these animals in vitro. That is, excised fragments were placed in plasma in a warm stage under the microscope and the growth of the new tissue watched and recorded. They all grew, at different rates, according to their nature. The rate and mode of growth is most suggestive and important. There seems to be a relation between the onset of cell proliferation and the age of the animal from which the tissue is taken. Thus a gland tissue from an adult dog may require forty-eight hours to commence growth, but from a young puppy it will grow in twelve hours. Secondly, the rate of growth increases as new cells are formed. Thirdly, if the new cells are transplanted to fresh plasma the rate of growth is still further increased. Fourthly, as the rate of proliferation increases the cells assume embryonic characteristics, while there is thus exhibited a tendency to reversion; there is also manifest a very distinct retention of type. The experimenters state that in all cases the first produced new cells are spindle cells of the connective tissue type and to these are later added the characteristic cells of the tissue, which may even grow in histologic relationship; thus in the case of the kidney, new tubules grew out free from the excised tissue into the surrounding plasma. Since the publication of the original monograph further research has shown that even more active cell growth is possible in artificial media unrelated to plasma.

The reflections and possibilities opened up by this work are many. It is apparent that the changes occurring in the transition from the old to the new cell growth are very similar to those proper to tumor formations, the same acceleration of rate of growth, embryonic reversion, and yet a rough maintenance of type, nor is it possible in this connection to forget Weigert's generalization that such growth "only occurs when from any cause there is disturbance of the reciprocal normal equilibrium of the tissue, and tissue elements, and when the physiological restraint is removed which one tissue element exercises upon another." The word "only" may go beyond the facts, but these extra corporeal growths are laboratory demonstrations of Weigert's theory. In the same way we may expect light on many other physiological and pathological questions. On the side of direct practice, it seems already possible to make direct use of artificially grown epithelial

cells as a substitute for skin grafting, while the growth of specific secreting cells in large quantities is still conditioned by the difficulty of providing suitable media and the removal of the metabolites. Yet there is nothing in the problem more difficult than many that have been overcome, and the possibility of ultimately producing the internal secretions in quantity and of superior purity is not unreasonable. Furthermore, the ability to regulate and exactly determine the physical and chemical environment of such cells foreshadows a development of cellular chemistry that would solve many of our most serious problems. H. D'A. P.

It has been frequently true that great advances in medicine have, in a manner of speaking, sidled into the world creating no great contemporary stir. Subsequent generations, however, point to them as landmarks and often note with pity the times in which they were born and which failed to recognize the gems in their own midst.

This may not be so true of our own age, for surely we have been generous in recognizing the colossal achievements of some of our contemporaries. Ehrlich, Flexner and Koch have reaped fulsome reward of genius and Sir A. E. Wright, Ronald Ross, Harvey Cushing, Wm. Osler, the Mayos and other intellects of the day cannot complain of a world cold to their attainments. Even have we been too prone to acceptance of new ideas and oft have we, especially in this State of California, turned to strange gods and false medicine men with bacterial soups and noxious emulsions of malignant growths.

In the midst of all this has crept into our literature with a modesty characteristic of the investigators, the epoch-making discovery of auricular fibrillation. Workers along cardio-vascular lines have overloaded the journals and transactions with voluminous reports,—some well founded, some full of imagination. The pathological physiology of the heart has been examined, mauled, twisted and handled by myriads of investigators. It has been at the mercy of many a fantastic laboratory man and clinician, but here and there from out the turmoil flashed a light which was to culminate in a brilliant beacon. His and Kent laid the way with the torch of the auriculo-ventricular bundle. James Mackenzie guarded the path with the signposts his application of the graphic methods of pulses afforded. Einthoven transported us further when he gave the electro-cardiogram, and then, as is usually the case, one man collected all that had gone before and brought forth a new truth. Using all these stepping-stones in a series of epoch-making and indubitably proved experiments, Thomas Lewis, working in the University College, London, laid bare the phenomenon of auricular fibrillation.

His work is to be found detailed in "Heart," for 1910, and repays many-fold the assiduous reading it entails. He began by enquiring further into the so-called nodal rhythm which was the term Mackenzie had given to the venous pulse in which all sign of auricular contraction was lacking. This pulse was

to be found in nearly all of the cases of "broken compensation" and was accompanied by an arterial pulse to which the Germans gave the excellently descriptive title of *pulsus irregularis perpetuus*. All signs of auricular contraction being absent in the venous pulse, Mackenzie argued that the auricular wave must occur simultaneously with the ventricular wave and that the latter covered up the former. For auricle and ventricle to be contracting simultaneously the rhythm of the heart must be altered and the impulse instead of beginning at the sinus must be pathological and originate in these cases at the auriculo-ventricular node. Therefore the term nodal rhythm. This was a matter however, of speculation and the conclusion was reached by negative arguing. It was a source of grief to Mackenzie and to those who worked along similar lines that positive proof of this theory had never been attained.

The electro-cardiogram becoming available, Lewis turned his attention to the experimental and laboratory side. Working with animals he found that it was easy by stimulating the auricles with electrodes sewn into those chambers, and by regulating the strength of current, to reduce the auricles to a state of fibrillation lasting a longer or shorter time depending on various circumstances. Taking electro-cardiograms of these animals with their auricles fibrillating, a certain photograph was obtained. This photograph clinically and electro-cardiographically corresponded exactly with that given by patients having the so-called *pulsus irregularis perpetuus*.

This illuminated at once the course of events in these cases which are by far the greatest number of heart cases with which a clinician has to deal. Impulses from single auricular beats are not coming to the ventricle but instead the auricle in these cases showers impulses on the auriculo-ventricular bundle by the thousand. This easily exhausts the conducting power of the bundle with the result that very few impulses get through and the ventricle assumes a rhythm influenced by whatever stimuli can get through the bundle from the auricle.

As a theory this would be most enticing but the proof and manner of proof was exquisite. The importance of this work can hardly be overestimated for it led to therapeutic investigations which resulted in further glory to our old standby digitalis. Cushny and Mackenzie took up the thread where Lewis left it off and soon showed that the efficiency of digitalis was not only in increasing the force of ventricular contractions but by reducing the conductivity of the bundle, thus lessening the number of auricular impulses that could get through. This explained beautifully why we get such striking results in cases of "broken compensation" with an extremely irregular pulse. Turnbull on Digitalis in the British American Journal, Cushny in the American Journal of Medical Sciences, and Mackenzie in his Oliver-Sharpey Lectures have written brilliantly on this subject and to them readers along these lines are urgently referred.

These advances would not have been possible had not the graphic method of the study of heart disease been used, and after all it is to Mackenzie, who, personally interested himself in Lewis' work as well as providing a stimulus to it that the lion's share of our



thanks are due. Our profession still contains those who scoff at polygrams and electrocardiograms as fancy adjuncts to medicine but they have served their purpose well and the scoffers are among those who know least about the pathological physiology of the heart. Those who have interested themselves in this work appreciate the great step that has been made and those who would be anxious to get a more intelligent conception and greater therapeutic efficiency in the handling of heart disease should follow assiduously the work along these lines that is now going on.

H. I. W.

Although the easier and more rapid means of transportation and communication, and the constant stream of travel are making medicine more and more cosmopolitan, there seem still to exist some few appliances and methods peculiar to certain countries. The Kelly obstetrical pad, for instance, is distinctively American. We have never seen this admirable appliance used either in Great Britain or on the continent of Europe.

In the *Journal of the A. M. A.* for July 1st, W. T. Coughlin describes a form of ether anaesthesia which he happened to see in Leopold's clinic in Dresden, called the "Aetherrausch" and first described by Sudeck of Hamburg.

The "ether-rausch" may be known in Canada—Mackay says it is in a note on Coughlin's paper in a later number of the *JOURNAL*—but it does not seem to be known or used in this country;—and yet it is the anaesthesia *par excellence* for the clinic, for the office, for private practice, wherever, in fine, a short anaesthesia is needed and gas is not at hand. It is used a thousand times a day throughout Germany, and a death or an untoward accident under its use has never been reported. It takes but two or three minutes to induce, carries with it no post-operative vomiting or malaise, and its effects pass off in ten or fifteen minutes.

It has, however, its limitations: it is a short anaesthesia and incapable of prolongation; it gives complete analgesia but not complete muscular relaxation, so that it cannot be used for setting a fracture or for reducing a dislocation.

In principle the "ether-rausch" depends upon a quick momentary saturation of the blood with ether. The technique is as follows:

First. Remember the anaesthesia is a short one, prepare the patient *completely*, and get *everything* ready to your hand—instruments, sutures (needles ready threaded) disinfectants, drains, dressings, splints,—if you have to stop to hunt for a dressing the patient will be awake before you know it.

Second. Saturate an old-fashioned, large ether mask with 50 to 75 c. c. of ether—a Juillard mask covered with 8 layers of gauze inside and with oiled silk outside is the best, but an ordinary ether mask above which are placed two towels folded so as to make 8 layers will do. Tell the patient to hold one arm up in the air, and to breathe deeply, with forced inspirations. After he has taken five or six deep breaths advance the mask, holding it two or three inches above the face at first. The face

soon begins to flush, the respiration to deepen;—now apply the mask closely, so as to let the patient breathe the concentrated ether vapor;—two or three more breaths and the arm which the patient was holding elevated will drop. This is the signal to begin; the anaesthesia is now complete, operate and carry your work *through* quickly, dressings and all, without a stop. Don't begin before the anaesthesia is complete. If the course of giving the anaesthetic is interrupted by pain the patient will begin to struggle and a further continuance of the narcosis will be impossible.

The mask should be removed from the face a minute after the patient is well "under"—after the painful part of the operation, the incision or the packing, is over. The room should be absolutely quiet throughout the whole procedure. The patient will then lie in a doze or stupor for four or five minutes after the mask is removed. When he awakes he presents the typical appearance of a drunken man—sits up with a flushed face and stupid leer, and laughs hilariously, or weeps—or does both at once.

Sudeck's "ether-rausch" has been a boon to many a German practitioner; it deserves that we should know it and practice it.

From time to time one hears the "vaccine" treatment of certain skin diseases adversely criticized by physicians who have been disappointed with their results. During the past six years the writer frequently has seen patients who previously had been given vaccines by their physicians in an empirical manner, with the inevitable bad result and the consequent discrediting of the method. It is to those who have been disappointed with their results that the following "don'ts" are respectfully dedicated in the hope that their due observance may be the means of preventing some future failures. The writer bases the following on considerable personal experience and success with the method and reports from other practitioners.

SOME DON'TS IN VACCINE THERAPY.

Do not expect to see good results unless vaccines are used in accordance with certain established rules,—only disappointment can result from empiricism.

Do not use vaccines to the exclusion of all other methods.

Do not use an emulsion over three months old.

Do not use a monovalent stock vaccine if a polyvalent preparation can be obtained and do not use either if an autogenous vaccine is available.

Do not overwhelm the patient at first with too large doses, and do not increase the dosage too rapidly.

Do not inject too often—this is a common error which is responsible for many disappointments.

Do not inject vaccines in the treatment of the average case of acne, furunculosis or staphylococci more often than once in seven or ten days. Be guided by the clinical signs.

Do not forget that during the two or three days immediately following a *proper* injection the negative phase is present and that during this phase lesions should not be manipulated or interfered with in any way. Usually after the fourth day (if the dosage has not been excessive) the positive phase begins to develop, and then local treatment can be carried on advantageously.

Do not forget that much manipulating of the lesions can have an effect similar to an injection and in that way can complicate the negative phase.

Do not fail to observe that a marked increase in lesions during the first two or three days following an injection is evidence that too large a dose has been injected or the lesions themselves have been interfered with, or both.

Do not repeat the injection for some time if the negative phase (as shown by objective signs) persists,—and then when the injections are again resumed proceed cautiously with small doses.

Do not use the same region for repeated injections,—change the site often.

Do not condemn the method if your results do not equal your expectations, but carefully determine whether or not you have carried it out properly, and you will probably find some error in your technique.

HARRY E. ALDERSON.

In the July number of this Journal, under the heading, "Cheap Work, Poor Work," we had something to say in regard to the  
**IS CHEAP WORK POOR WORK?** "Pacific Wassermann Laboratories." In this article we referred to the biblical statement that "the laborer is worthy of his hire," and from that deduced the proposition that cheap work is usually poor work. Exception has been taken to this statement by George Gilman, Esq., connected with the laboratory in question, and he states that he possesses several degrees, and has studied in the foremost universities the special objects connected with the class of work he is doing. We are glad to learn this, and we at the time of writing the first article had no knowledge of the ability or lack of ability of the persons operating the laboratories in question, but we deduced from the list of prices, and the biblical authority above stated, that the work there performed could not, for those prices, have been based on a scientific and competent opinion. Nothing in that article was intended to reflect upon the ability of Mr. Gilman or any other person connected with the "Pacific Wassermann Laboratories," but men having the ability which they claim should certainly charge a fairer price for their services, for the rates quoted are not, in our opinion, a fair compensation for such examinations when performed by men capable of performing them in a scientific manner.

## ORIGINAL ARTICLES

### CLINICAL OBSERVATIONS ON MIGRAINE.\*

By HERBERT C. MOFFITT, M. D., San Francisco.

It is a pleasure in this gathering of specialists once again to acknowledge the great debt of the clinician to ophthalmology. No medical student of to-day should leave school and hospital without command of the methods of eye examination,—the ophthalmoscope to the internist is as indispensable as the stethoscope. But during incursions into the borderland of your activity the clinician not infrequently has chance to observe that the specialist, early in his career, builds too high a fence about his preserves and cuts off his view of the general broad field. A proper training in clinical medicine and neurology is essential to the interpretation by the ophthalmologist of many pupillary, muscle and fundus phenomena; the judicial habit of mind acquired at the bedside will curb tendencies toward narrow specialism and keep in check the enthusiastic advocate of eye strain as a source of all evil.

The few minutes at my disposal can serve only to emphasize how little we really know about migraine, an old personal foe of many of us, the commonest form of headache with which we have to deal. My observation, fairly wide, confirms the view of most clinicians—that migraine is a definite disease of the brain. It is true the changes in the nerve cells answerable for the peculiar periodic discharges as yet escape detection, and will probably long defy our analysis; they are in the great majority of instances inherent,—in other words migraine is most often an inherited affection. The migraine tendency (Moebius) may be so deeply stamped upon the brain that the individual in question, no matter how free from the baleful influences of infection, organic irritation or disease, and how far removed from the cares and struggles of ordinary life, may periodically suffer from partial or severe attacks. In others with impression less strongly marked the tendency lies dormant until awakened by some infection, perhaps general, as typhoid or scarlatina, sometimes local, as in tonsils nasal sinuses, gall bladder, appendix, prostate or Fallopian tubes. Intoxications, alcohol, gastro-intestinal, nephritic, thyroïdal—the continued irritation of nasal disease, of refractive errors, of abdominal adhesions, of abnormal sexual habits,—above all the daily friction, worry, excitement of modern existence—these influences may damage the normal nervous system; they intensify and may induce the attacks of migraine. Though in most cases this peculiarity of brain cells "the migraine tendency" is inherited, it may be acquired through injury of the nervous system by the varied factors just mentioned, or the phenomena of the disease may result from actual organic lesion of the brain or cord. The varied contributing causes must not be lost sight of in directing rational therapy but overenthusiastic treatment and prognosis must be governed by conservatism born of the knowledge that the essential factor here, as in epilepsy, is the perturbed brain cell.

\* Read at the Forty-first Annual Meeting of the State Society, Santa Barbara, April, 1911.



The phenonema of the disease appear usually in childhood, about puberty or in early adult life. Migraine developing after 40, especially if not accompanied by a history of heredity, should be regarded with suspicion; it is most often symptomatic and due to tabes, general paralysis, nephritis or brain tumor. Periodic vomiting with or without fever, attacks of acidosis, so-called "bilious attacks" are frequent manifestations in childhood—headache may be absent. The usual seizure in adults is characterized by headache, most often unilateral, frontal or temporal, nausea and vomiting. Prodromes, depression or unusual *bienaise*, drowsiness, bulimia, may precede and varied sensory phenomena may usher in an attack. The study of varied migraine equivalents would detain us long and we are naturally most interested to-day in the ophthalmic type of the disease.

In a university student of 19 headaches began at the age of 12 and have continued at intervals of a few weeks or months. His mother has periodic headache with vomiting, his father and brother have attacks similar to his own. The phenomena of each seizure are the same. Suddenly, most often in morning hours, shimmering light and colors appear in the center of the field of vision and slowly spread in zig-zag lines over the right half of the field. Inability to see objects straight in front is noted at the onset and gradually the whole right half of the field of vision is obscured. Central vision is now restored but he is certain that even the left field is considerably restricted. The blindness lasts one-half hour and as it passes off, headache begins. This is nearly always in and back of the left eye, is not accompanied by vomiting and is terminated by sleep. At times the visual phenomena are followed by tingling in the right side of the face, both sides of the tongue and in the right hand. Paraphasia occurs only when the sensory symptoms are marked. The unusual feature, in this case, is the concentric limitation of the left visual field which accompanies the right hemianopsia.

In a young woman of 20 peculiar attacks had begun two years previously following a long period of ill health and had recurred every two or three months. Her mother and mother's mother had suffered from severe sick headaches. The onset may be absolutely sudden—tingling and then numbness are felt in the little finger of the left hand and quickly spread over the hand and half way up the forearm. The left side of the tongue and face is then involved and aphasia usually occurs. She cannot say the word she wants or (rarely) is unable to speak at all for a few minutes. Not till now do obscuration and scintillation appear in the left half of the visual field and quickly advance to complete left hemianopsia. Then follows severe headache in the right temple, which persists for 2 or 3 hours. Vomiting was a feature of early attacks but no longer occurs. As may be noted frequently, in patients with migraine, she has arteries of small calibre and the blood pressure is low, 90 to 100. Pallor is marked during the attack. She suffers terribly from chillblains and frequently has hay fever. Contrary to what is observed in this instance, the sensory phenomena usually follow the visual aura. It is of

interest to note that the aphasia with left sided parasthesia is explained by the left-handedness of the patient.

A woman of 50, whose father and two uncles had migraine, has since early childhood been afflicted with varied types of the disease. Periodic vomiting was the first manifestation, then headaches and vomiting recurred each month at the time of the periods. Later scintillating scotoma and hemianopsia preceded the headaches. Now nausea and vomiting no longer occur. Such incomplete and variable forms of migraine are by no means infrequent. The most common type of the disease is marked by recurrent headache with nausea and vomiting. Scotomata may develop without scintillation. The sensory aura may occur without headache, though this is rare and such cases are often misinterpreted by physicians as well as patients. Parry, the famous Bath physician, best known to us from his descriptions of angina pectoris and exophthalmic goitre, had the scintillating scotoma without other symptoms. Two members of a migraine family under my observation have brilliant pin-wheel phenomena with lateral scotoma but without headache. A young woman has recently been much alarmed by the occasional sudden blurring of her field of vision so that she sees only the left half of faces or other objects. This is followed in a few moments by numbness of both sides of the face and of the left arm. Dizziness and drowsiness supervene, she is obliged to lie down and a sleep of an hour or two ends the attack. There is no headache with these seizures but typical migraine occurred in former years.

In a man now 50 with inheritance of gout and migraine, there have been remarkable attacks of cerebral claudication over a period of 30 years—aphasia of varying degrees, short periods of disorientation, occasional dizziness with staggering. Sometimes these phenomena are followed by unilateral headache, sometimes they occur independently. Féré, Gowers and Oppenheim have described rather similar cases.

In the following instance the visual symptoms are most unusual. A young woman (inheriting migraine from her father) has had since early childhood unilateral headache, nearly always about the right eye and temple, recurring regularly every Sunday. She exhibits many vasomotor phenomena—flushing, coldness and cyanosis of the extremities, chillblains, paroxysmal sneezing. In recent months there have been repeated attacks, not marked by headache, of dimness of vision in the right eye. Gradually the obscuration deepens and sight is totally lost in the right eye for a few minutes. She is positive that the loss of sight is unilateral, that there is no preceding scintillation or scotoma and that the vision of the left eye is undisturbed. Unfortunately there has been no opportunity to examine the retinal arteries during an attack. In a case recorded by Antonelli, unilateral loss of vision accompanied attacks of migraine. Contraction of the retinal artery may be the causal factor in these cases but a cortical origin is possible. Complete blindness during an attack is less uncommon than the unilateral loss of vision. It is to be remembered

that complete blindness may result from an organic lesion of one occipital lobe, may persist for some hours or days and may then give way to permanent hemianopsia.

It is impossible to dilate upon the many forms of the scintillating scotoma; these illustrations from Gowers and from the fascinating book of Liveing bring them much more vividly to mind than mere description. In this connection the remarks of Moebius may be quoted: "Weder aus den Schilderungen der Autoren, noch aus meiner Erfahrung habe ich mich überzeugen können, dass (abgesehen von ganz vereinzelt Ausnahmen) jemals bei Migrän ein wirkliches Nichtsehen vorkommt. Wenn etwa bei einem Kranken die Sehbahn im linken Hinterhauptlappen durch einen Erweichungsherd unterbrochen ist, so fehlen ihm die rechten Gesichtsfeldhälften, er sieht mit den linken Hälften seiner Netzhäute so wenig, wie er mit seiner Hand sieht. Ist es bei der Migrän so? Sicher nicht. Der Migränkranke sieht während der visuellen Aura immer etwas, so gut wie nie fällt wirklich ein Theil seines Gesichtsfeldes aus, sondern er gleicht einem Menschen, dem etwas vor die Augen gehalten wird. Mit anderen Worten, es handelt sich bei der Migrän immer um Sinnestäuschungen, nicht um Nichtsehen. Es gibt ein Migränescotom, keine Migränhemianopsie. Man darf auch die Einschränkung des Gesichtsfeldes bei Migrän nicht mit der bei Hysterie gleichstellen, denn der Hysterische hat keinerlei Sinnestäuschungen, kein Scotom, sondern ihm entgeht nur ein Theil seiner Wahrnehmungen. Deshalb schlage ich vor, dass man bei Migrän nicht mehr von Amblyopie, von Amaurosis, von Hemianopsie rede sondern nur von Scotomen, deren Art man durch Eigenschaftswörter näher bezeichnen mag."

It is not uncommon to find evidence of unilateral sympathetic palsy in patients with migraine, drooping of the upper lid, a narrower lid split and the eye-ball deeper in the socket. It has not been my experience that this difference is more frequently noted on the side of most frequent attacks of pain. The pupil on the affected side may be smaller, but irregularities of pupillary outline or marked differences in size do not occur; a failure of the light reaction should awaken suspicion of migraine symptomatic of tabes or general paralysis. It has seemed to me that the arcus senilis is not infrequently quite marked at an early age in patients with migraine, but one sees this in individuals who never had headaches. DeGiovanni (quoted by Gowers) observed the temporal artery more prominent and arcus senilis more marked on the right side in a woman of 50 who had suffered from repeated attacks of right sided headache. Paralysis of ocular muscles is a rare event but may occur. The migraine ophthalmoplegia is perhaps better maintained as a separate affection. The long intervals between seizures, the duration of the unilateral headache for days, the constant recurrence of the phenomena on the same side, the long duration and even permanency of the oculomotor paralysis, the lesions of the oculomotor nerve that have been found at autopsy—these facts speak strongly against any near relationship with ordinary migraine. In a boy of 12 seen 5 years ago there was no family history of headaches. Ten or

twelve attacks of severe supraorbital pain and right third nerve paralysis had occurred in the previous four years and slight paresis of the ocular muscles had persisted between the attacks of the past year. In my experience errors of refraction are not more common with migraine than in normal individuals, and comparatively few headaches of this type are permanently cured by glasses.

The nature of the changes underlying the phenomena of migraine is not known, even the localization of the process is not undisputed. Jolly and others have assumed an involvement of the optic tract but it is difficult to dissociate the visual and sensory phenomena from a cortical localization. The theory of Plavec that periodic enlargement of the pituitary gland is answerable both for headaches and the visual manifestations is more ingenious than plausible. The occurrence of partial defects of the field of vision is more in accord with a cortical origin. Occasionally, as was frequently the case in a man seen some years ago, the upper or lower halves of the visual field may be obscured. Gowers would call upon the hypothetical higher visual center of Ferrier in the neighborhood of the angular gyrus to explain the phenomena of crossed amblyopia and homolateral contraction of the visual field occasionally observed in organic lesions of the brain and of possible occurrence in migraine. There seems little reason, however, to assume a lesion outside the area of visual representation in the occipital lobe. The sudden onset and ephemeral character of the phenomena, the recurrence through years without permanent damage (except in rare instances) to the nervous centers involved, the alternation with other symptoms of cerebral claudication speak for a vascular origin of the seizures; how the cell discharges which originate the vascular changes are brought about is still a mystery. The vasomotor manifestations so commonly observed during an attack are concomitant and not causal. Angioneurotic edema preceded or accompanied attacks in two of my patients but the theory that edema of the cortex or intermittent hydrops of one lateral ventricle could be the cause of the disease is not at all in accordance with clinical facts. I have done lumbar puncture twice during the day of headache and once during a persistent status hemicranicus and found low pressures, between 75 and 90. In several instances puncture has been done between attacks, and in no case has pressure been increased or the cerebrospinal fluid abnormal. The procedure has most often been followed by increased pain and cannot be recommended in this type of headache as a therapeutic measure. The pain of hemicrania as the name implies is most often unilateral but it may be most variable; may occur on both sides, may alternate between right and left sides. It is usually frontal or temporal or is felt deep in back of the eye and through the head. Exceptionally it may be occipital or may be felt down the neck and in the shoulder. Whether originating in dura or cortex is not determined though there can be no question that the dural or peripheral trigeminus branches disseminate the sensations. Cushing has recorded the interesting observation that in patients in whom the Gasserian ganglion has been removed the pain



of migraine has no longer been felt on the side deprived of sensation. It would be of value to note whether other phenomena of the attack were unaffected.

The transient visual phenomena of migraine may occasionally be followed by permanent lesions. Noyes has recorded a case of persistent hemianopsia succeeding ephemeral attacks many times repeated; softening of the cuneus being found at autopsy. Uththoff has seen three instances of permanent hemianopsia follow upon migraine scotomata. The French school has particularly emphasized the danger of ophthalmic migraine and described varied sequelæ, as permanent aphasia hemiplegia, hemianopsia and amaurosis. Parry was one of the first to point out the relationship of migraine and epilepsy and Liveing, Féré and Gowers dwell upon their close association and the possibility of transitions from migraine to epilepsy. With the onset of epilepsy attacks of migraine may cease. This has been observed also after cerebral trauma, with the development of organic disease, as tabes. No satisfactory explanation can be given of the frequent cessation of attacks after the age of 40 or 50.

Moebius mentions the possibility of glaucoma resulting from repeated migraine. He is conservative in his estimates of the frequency of actual brain lesions in the course of the disease. "Nach alledem halte ich dafür, dass bei der Frage, ob die Krankheit Migrän zu groben Gehirnläsionen führen, oder sich in Epilepsie unwandeln könne, vorläufig Zweifel noch gestattet seien. Es scheint mir wahrscheinlich, dass der üble Ausgang hie und da vorkomme, aber weitere genaue Beobachtungen sind sehr erwünscht. Das ist wohl sicher, dass in der übergrossen Mehrzahl der Fälle von Migrän weder apoplektische noch epileptische Zufälle zu fürchten sind."

A few observations in regard to therapy may not be wholly out of place. Though now marked by headache and vomiting alone, again by brilliant visual phenomena, in other instances by more complicated sensory and vasomotor manifestations the disease through all its varied types is essentially the same,—the fundamental factor is the disordered nervous system. In order to cure obvious serious disease or to free the individual with migraine from drains on his store of nervous energy, the abnormal thyroid gland or infected gall-bladder should be operated upon, the irritation from gastro-intestinal sources, from nasal abnormalities, from eye strain should be removed, but in each case the clinician or the specialist should weigh well the importance of the local condition and remember that it is but a contributing or exciting factor and not the true cause of the disease. We see too often many victims of misdirected operative enthusiasm. Recently a young woman with typical migraine was seen who had had, at different times, her appendix removed, the uterus suspended, the right kidney fixed, a frontal sinus drained, the nose cauterized and eye muscles cut. In another young woman the appendix was removed, stomach washing was then assiduously practiced, later gastroenterostomy was done and recently eye muscles had been cut. Similar cases might be multiplied almost indefinitely. It is a wise habit to regard the patient as a whole and not to fix the

view on this or that local abnormality and magnify its importance. We too often forget inherent tendencies, too often underestimate the nervous wear and tear of modern existence with its friction of daily worries, disappointments and unrest. More may often be accomplished for the man or woman with migraine by a rational mode of living, working and thinking than by drugs, eye glasses or operation.

## A CONSIDERATION OF MENTAL DEFECTIVES.\*

By ROSS MOORE, M. D., Los Angeles.

Greek mothers exposed their offspring to the elements and allowed them to die in order that the Greek race might attain and keep physical perfection. It is not in the nature of motherhood to do such a thing willingly. It was a governmental regulation to the fulfillment of which they were bound.

To-day in America we are lavishing much care on the subnormal, or the abnormal child. Many private schools are to be found over the country, and the ungraded room of our public schools is established to help him reach as near the average as he can.

The Greek system gradually eliminated the weakling. It is a problem worthy the best efforts of this profession to discover just where the American system is leading and what to do about it.

There are several phases to this problem. First, it must be recognized that there are many subnormal children. Many children who pass at first sight for normal, or average are, in truth, enough subnormal to be definitely handicapped in the struggle for existence. These milder grades often exist in families without being recognized. Subnormal may mean just poorly balanced. A child may be quick of perception while entirely lacking in the power of application. Or he may be inherently honest and have a memory so short as to make him appear untruthful. Nervous irritation and consequent disease surely follow the attempt to fit such a child into the place in school or home which a normal child would fill. It may mean tragedy in after years. Many a bearish misanthrope of a man is the direct result of being misunderstood in childhood.

This subnormal child is rarely developed into a normal adult. Nature's handicap persists though usually crowded into the background as soon as its unfortunate possessor realizes it.

If the subnormal child grows into a subnormal manhood what chance has he to make good in life's struggle? He should not have to make this struggle in the open, but should be protected on his weaker side; the side of his natural handicap. He must be taught to realize his weak side, and the whole course of his life from early childhood on must be so shaped as not to allow his weakness to become prominent. A child who tells untruths easily should not be allowed to prepare himself for a life position

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where temptation to tell untruths is ever present. The weak sighted, astigmatic child should not learn an occupation requiring wearing use of the eyes.

In a word let it be recognized that American life is producing an ever increasing number of peculiar and subnormal individuals, who are handicapped by nature. They must be understood from childhood, must be educated according to their individual needs, and their plans and ambitions molded in the making, so that they will quite naturally fall into the place in life to which their talents and their limitations adapt them. The title of this paper is probably misleading. It is misleading because of the general picture called up into mind by the words "mental defective." Interest in the idiot and imbecile is small. His is a fixed handicap, and his possible development is not large. I would like to confine the use of this term "mental defective" to the children usually called "queer" or "different." A queer child is just queer. He gets substantially the same treatment as the average child. He is usually defective without being recognized as such. If he were labeled mentally defective just as a hump-backed child is labeled physically defective he would at once be placed under proper conditions for developing the best there is in him. It would seem as if this were a problem for fathers and mothers primarily. But practically it is the family physician who is in position to clearly recognize the condition first, and he will do it only as a side issue when called for some of the ordinary ills of early childhood. In most cases the parents will have no sort of conception of the defectiveness of their child. As a matter of fact it is usually the teacher of some of the middle grades in school who first discovers and labels the defective child. This occurs only after years of misunderstanding and irritation. Even then, after the discovery is made, the child is subjected to still further irritation because his parents refuse to believe him to be what he is. The result of such a state of affairs is easily conjectured. The family physician has it in his power to start these children right by having them understood by their parents early in life. The usual thing is to make every effort to keep from a defective child the knowledge that he is different from other children. Parents, relatives and friends surround him with their protection, and he grows up in ignorance of the one thing a knowledge of which would enable him to conduct a successful life. This results in certain trouble and disaster when the inevitable struggle with real conditions begins. But happily for them the parents are frequently dead and the relatives and friends are scattered and their interest in the defective one is lost before this part begins. Their misapplied kindness in early life results in

smug complacency on their own part and gigantic tragedy for the patient. No parent would do this if he knew what he was doing.

A defective child can be recognized as such very early in life. I contend that, being recognized, he should be brought up to know and accept his handicap. Since he is going to live give him the best chance. It is up to the family physician to be on the lookout for these children when in the course of general work the younger members of the household are before him. He must educate the parents, who in their turn must educate the defective child.

Last night I introduced a resolution which will be acted upon by the Council, which takes cognizance of the movement already started in the state looking toward the formation of a society for mental hygiene. The society will become a permanency in the work, preventing preventable disease just as the public health organization is a permanency in this work at the present time. In order that you may know what we have in mind I will state briefly the objects of this society. Societies of this description are already formed in a number of eastern states. The first object of this society would be or is to secure state institutions for the care of new classes of state dependents such as epileptics. We have places for the idiot and the epileptic imbecile but no place for the man who has fits once or twice a month. He is the most outcast of our sane population. Therefore the first object of our society will be to provide state care where that man may become measureably independent. The second object is the betterment of the existing laws and institutions for the insane. The third is the scientific study of mental diseases. The fourth—on which the preliminary paper was based—is the education of the general practitioner so that he may make these diagnoses early enough so that preventive measures can be taken. I mean with reference to children—queer children,—let the queer child be recognized. The next object is to get the parent to see the defects which the doctors find. The sixth object is to educate the adult defectives whom we now have among us. There are many mental defectives who might be very much more self-dependent than they are if they were taught how to be. The seventh provision is segregation or sterilization of defectives. The eighth is the future care of persons discharged from the institutions of our state and provision in case of a return of their disease.

#### Discussion.

Dr. Gilbert V. Hamilton, Santa Barbara: What Dr. Moore has told us is looking quite in the right direction. It is a most hopeful sign to have had the whole subject receive as much thought as it has received here. In our specialty we need to be more



specific, to get away from platitudes and generalizations. The surgeons and the obstetricians never got anywhere until they came down to close points, and we are fifty years behind them because we have failed to follow suit.

Dr. T. C. Edwards, Salinas: I have been greatly interested in this paper of Dr. Moore and I also listened to what one of the other speakers has said. What he said emphasized the necessity of following the idea of Dr. Moore—starting earlier in life to do something for these feeble-minded children. While he was talking there came to my mind an incident I read a good many years ago showing what can be done by concentrated effort. A lady was asked why it was that she was never out of humor—always pleasant and good-natured. She answered that as a girl she had heard her father and mother talking and they had said they were so sorry that she was so homely—that they had never seen a homelier child. She said that it had come to her that if she was so homely she should have some other qualification and so she began to learn with all her might to be pleasant and to be attractive in manner. With regard to speech center and brain localization, in a little work by Thompson, "Brain and Personality," he shows that the speech center is developed as we grow, and it may be that other characteristics can be and are developed in the same way and this may explain why one speaker has found the necessity of having the feeble-minded children do something and if it is the left side of the brain in which is located the speech center for the right-handed man, manual dexterity may have much to do with personal character, there is a cue we might take. Dr. Moore also says that the defective should know of his defect. How else can he correct it? The very poorly-nourished, poorly-muscled boy would know he could not be a blacksmith, then why not teach the mentally defective of his defects and begin to teach him to develop and correct them as early as possible? If this is carried out Dr. D. may have fewer cases of this kind in his institution.

Dr. A. W. Hoisholt, Stockton: Dr. Moore was speaking in his paper more of the backward and queer children than of the insane,—children unrecognized in their early life. The parents are blind to the condition of their children. They now and then have the idea come into their minds that the child is not all right but they also argue that it must be all right and insist upon doing for that child what they are doing for the others and try in their own way to correct it by doing things which make the condition much worse. They try to force its education in many instances. I have only recently seen many examples where such education has led to insanity. You do have cases that are not imbeciles who are suffering from insanity very early in life and they may be called imbeciles when they are not. In many instances you can trace the disease years back but find that the parents have covered up the defects. With regard to the other side of the doctor's talk, I am in sympathy with him. This thing should have been started years ago. I did try it in 1890—trying to do something in that direction. I hope this society will appoint its committees and that some work will be done in the coming year so that a report can be brought in at our next meeting.

Dr. Wm. G. Dawson, Eldredge: This paper has been one of great interest to me. I have charge of the Home for Feeble Minded at Eldredge and have been there for eight years and we have everything under the sun in that institution from tic down and I want to say that the diseases we have in that institution are diseases not recognized by the profession. I knew very little, myself, when I went in there and it seems to me that I know very little yet. We have a variety of nervous troubles in that institution which are not recognized by the profession outside. Cretinism is a very rare disease and yet many cases are sent to us as cretins when they are really melancholic idiots. Cretins are rare in the

United States. I want also to say that the feeble-minded can be educated. We can develop the minds they have and we will find that they excel in two things especially,—music for one. We have a band in our institution made up of the inmates, and it is a very fair band. They play classical music and they are sought for by the neighboring towns and they give good music. They also excel in fancy work, in drilling and gymnastics. You can train their hands and feet and they are able to do these things well. There is one point that I have only learned myself during the last month or two and that is the number of feeble-minded in this United States and in Europe. These statistics are correct—as much so as can be gotten at the present time. Statistics show that in England there is only 1 to 217; in Scotland, 1 to 400; in Ireland, 1 to 175; in the United States, 1 to 300. There are 307,000 feeble-minded persons in this United States. There are over 3,000 in New York; there are 125 in Pennsylvania; with only a little over 3,000 in institutions. In California there are 7952 feeble-minded persons. The average practitioner is not up on this subject and it is about time the medical schools were devoting some tuition to this.

Dr. D'Arcy Power, San Francisco: The situation as described by the last speaker is bad enough but it does not state the full import of present tendencies. If my memory serves me rightly the present increase in the insanity rate is double that of the percentage of growth in the population. Now with all other forms of disease we may reasonably expect a great and continuous decline with the growth of civilization, but this is not at all the case with mental defectiveness. There is nothing in the prospects of the morrow to suggest that the strain on brain structure and function will be lessened, on the contrary it is likely to be greatly increased. The brain to-day is an organ undergoing a forced evolution which must be completed if our civilization is to be permanent. The mental defectives are exemplars of strains that are fundamentally unable to attain such an evolution. If such defective strains are to be permitted to breed they can but perpetuate and increase their incapacity and bring ruin to the race. There is no more sacredly urgent duty at the present time than to enforce sterilization of the mentally defective. The question of the effect of sterilization on the personal morality of the individual is a trifle compared with the mental deterioration of the race, which we may rest assured will bring moral disintegration in its train.

Dr. Moore, closing discussion: This is not a problem of the queer child for the expert psychologist. There is nothing necessarily expert about it. It is simply common sense. The child is a twig—a small tree—and it can be trained without any difficulty. It is within the power of any general practitioner to see that a child is queer. It is a common statement that we regard a great many children as queer. In other words, this is a common diagnosis made by the layman with regard to children—they are a little queer. We should look into this queer-ness and convince the parents even against their will that this queerness ought to be arranged for in the future of the child.

### A RESUME OF THE MODERN OPERATIVE PROCEDURES IN EAR AFFECTIONS.\*

By DR. H. B. GRAHAM, B. S., M. D., San Francisco.

It is not my purpose to give a complete description or discussion of the various operative procedures that are followed by the various otologists of to-day, but to review them cursorily in order to give my personal impressions concerning their value. The operative measures of to-day are so varied, and

\* Read at the Forty-first Annual Meeting of the State Society, Santa Barbara, April, 1911.

the champions are so blindly enthusiastic in the advocacy of their particular hobby, that one is very apt to become over-enthusiastic about a few procedures to the exclusion of many good ones, and is apt to overlook that pathology and diagnosis of the case which may so readily point the way to the method of operation. In this branch of medicine, possibly more than in any other, are cases improperly operated and even lost on account of a lack of diagnostic skill, or an indifference to the finer diagnostic points, an indifference that has been fostered by the teaching that there is but one operation for an acute case and one for a chronic. That this is not so is amply proved by the successes of Bondy, of Heath, of Yankauer, of Reik and Welty.

In the early stages of the acute cases there has been a remarkable series in which the symptoms have rapidly disappeared upon the prompt enucleation of the tonsils and removal of the adenoids without any treatment of the ear, and being justified in supposing that the majority of the middle ear affections are primarily of eustachian tube origin, we certainly will make no error in the advocacy of an early removal of these structures. That the same treatment is also effective in later stages is my personal opinion, and I do not hesitate to make an antrotomy, paracentesis, tonsilectomy and adenectomy all at the same sitting, if within the first two weeks the symptoms are increasing rather than decreasing. The idea that our middle ear suppuration will produce an infection of the operative field in the throat, seems to me to be overdrawn, inasmuch as the flora of the middle ear is that of the throat, and simply ordinary cleansing washes sprayed into the nose and throat are enough, in my experience, to relieve any disagreeable symptoms. If one can, by this procedure, cut a middle ear suppuration down from six to three weeks, including after-treatment, and relieve the patient of any tendency to chronicity, I believe a step in advance will have been made. In this place I wish to reiterate what has been so often said in regard to measles and scarlet fever, that any unusual rise of temperature should be a signal for the examination of the ears, and that in cerebrospinal meningitis an involvement of the ears should be promptly met by a drainage of the vestibule, in the hope of retaining some of the function of the cochlea. (Alexander.)

Modern operators have put their stamp of approval upon the complete (Whiting) operation for all acute cases of mastoid suppuration after the third week, and I think the only marked advance made in recent years as a help in our surgery is along the line of the bacteriology of the disease. The classification of the cases into those due to the capsulated and those due to the noncapsulated bacteria, as described by Schottmüller and others, has taught the surgeon to be on the lookout for cranial and venous complications in the cases due to capsulated bacteria and to seek the extreme recesses for areas of necrosis and hidden underminings. Better uncover wide the sinus and meninges in these cases than take any chances on leaving foci.

As to the method of dressing I can not but feel that in these latter cases the open method with a loose packing is our only salvation, whereas in the

cases due to noncapsulated bacteria the blood clot and Beck's bismuth paste may be safely tried without any danger to the patient, and the worst that can happen is to open the wound and drain as though the blood clot or paste were not there; either will come out if markedly infected, and if not, one has saved the patient possibly weeks of disagreeable dressings. Our limited experience with the paste at Cooper College has been very satisfactory. To condemn the blood clot as a means of healing without first giving it a fair trial under thorough antiseptic methods, is certainly narrow in the face of a 90 per cent. primary healing reported by Reik. The technic is simple; after a thorough operation and washing with hot salt solution, the cavity is allowed to fill with blood, the subcutaneous tissues being scarified in case the oozing is insufficient to fill the cavity, and a subcutaneous silver wire suture used with silver foil dressing. With Beck's paste the wound may be sutured and a long-nosed syringe then introduced between the sutures for the injection.

In our chronic cases the field for a differential diagnosis is much larger and we have certainly marched far beyond the complete radical alone for every case of suppuration.

Yankauer has hit upon a valuable aid to conservatism in his curettement of the eustachian tube with his simple instruments in those cases of suppuration that seem to be confined to the antrum without necrosis or cholesteatoma and where the irritation is in the tube. The procedure is carried out through a drum perforation under local anesthetic (carbolic, cocain, menthol a a), care being used to see that all sides of the tube are thoroughly curetted as far as the isthmus, and even though the tube does not remain permanently closed, the suppurative process often stops. I have had patients state that their hearing was better and that a former ringing in the ears had disappeared under this procedure.

The hammer-anvil extraction is seemingly never practiced on this coast, but it has not by any means disappeared in European cities, and one eminent otologist told me that that small operation comprised the larger part of his private operative work. One may use local (cocain injection) anesthesia with a special syringe (Neumann) which has the flat portion of the needle point directed squarely upward when attached to the syringe, and with three or four simple instruments the operation is quickly performed in the ambulatorium. It affords a good view of the attic and better drainage for the antrum, and has its place in otology, especially among cases that are averse to a more radical procedure.

The controversy over the Heath and later the Bondy operations, has waxed strong for so long that it would seem as though some definite knowledge concerning their value would have been arrived at. Heath removes the posterior wall of the external auditory canal down to the ring and then makes a plastic and flushes the middle ear by means of a canula which is modeled for the patient at the time of operation. Bondy removes the lateral attic wall as well, and claims that the lack of trauma to the promontory is enough to preserve a good hearing. There is no doubt but that a certain class of cases will get



well under these operations, namely, those in which the pathology is in the antrum alone, but that they are procedures that can be followed in a majority of cases I doubt. How to make a diagnosis of antral disease without attic involvement is a question. Possibly if at operation one were to find enough pathological trouble in the antrum to account for the secretion or polyp formation, he would be justified to be content with a Heath operation; whereas, if he did not find an explanation for the same, he could seek further and do a Bondy or a Kuster-Bergmann. That one may make the required diagnosis before operation in a few cases is beyond a doubt, as I have proved by personal experience. Whether the results as far as hearing are concerned justify the care necessary in the Bondy operation, in the face of Dr. Welty's results with the skin grafts, is doubtful. Then too, Dr. Bondy's patients were all tested within six months after the operation, and it is well known (Mackenzie Alexander) that with our old methods of operation and healing the hearing may improve directly afterward, but that one and a half or two years subsequent the hearing is always less than before the operation, and this may be so with Dr. Bondy's cases.

Cheatle, of London, has shown that 20 per cent. of all temporal bones retain throughout life what he calls the infantile type; that is, an antral wall composed of a thin layer of compact bone, and an inner layer of fine cells, which he has termed fetal cells on account of their being formed before birth; the mastoid mass is as a rule diploetic, but may be dense. He thinks that the larger number of chronic suppurations are in this type of bones and that the dense antral wall is the cause, not the effect of the suppuration as heretofore held. There is no evidence microscopically that this dense bone is pathological. Under these conditions the Kuster-Bergmann operation is perfectly rational, especially where we can demonstrate that our pathology is in the antrum and attic. In this operation a triangular portion of bone is removed at the supra meatal triangle, and the radical completed, leaving the mastoid intact. If there is any suspicion that the mastoid cells are involved, the patient should be given the benefit of the doubt and everything removed. In this operation the cavity of the middle ear is left in the same condition as in the complete; the advantage lies in the short after-treatment and lack of deformity.

The complete radical is so well known that I will simply mention a few points that make for ease and success. In the first place, operate upon the diseased ear; use as large a chisel at all times as is convenient, instead of as small. In order to preserve the sharpness of the chisel, cut bone at every stroke and do not allow the chisel to slip over the bone. Proceed with some definite system, completing what is in hand before passing to the next field; this makes for rapidity and completeness. My order of procedure is that taught so thoroughly by Dr. Neumann, of Vienna. Open the antrum, widen it backwards, cut through the bridge, trim the superior wall and zygoma region, take the mastoid cells out posterior to the facial ridge, carrying the chisel always parallel to the facial ridge and keep-

ing outside of the external border of the horizontal canal; take the ridge down level with the horizontal canal, chiseling in same direction and protecting the canal thoroughly; now chiseling at right angles to the ridge, level it at its external end, and lastly, with the chisel vertical, knock off the overhanging portion; this means thorough knowledge of the anatomy of the canal. Remove the mastoid cells at the tip, uncovering sinus and removing the tip if indicated. This leaves to the last the most dangerous portion, and in case of accident the most important part has been accomplished, a packing may be placed and the operation closed. Do not be afraid of uncovering sinus or dura, as these cases heal more rapidly than those with bone cortex intact, and there is no danger of infections if the opening is large; if it is small, make it large. In removing the bridge let the last stroke of the chisel be at the upper end, as breaking the bridge through from below endangers the horizontal canal and facial nerve. Remove splinters from in front of promontory, as they can be very easily driven into that structure. Protect the mucous membrane of the middle ear with gauze or cotton during the operation and the hearing subsequent to operation will be improved. In order to remove the tip, place the chisel vertically at the external auditory canal and give a sharp rap; then again at the posterior surface of the mastoid, and the fracture will be complete; grasp the tip with heavy forceps and subluc the same outward, removing the muscle by means of a pair of scissors; do not pull out any stray fibers from the neck, as this is the main cause of a cervical infection.

The various methods of entering the antrum are practically all a matter of personal choice, whether one proceeds by the Stacke, Schwartz, Zaufal or Von Troeltsch methods, or whether he is in the habit of using a burr or a chisel, the point of importance is to know what he is doing.

In cholesteatomatous cases if the matrix is not removed the cholesteatom will reform and has to be cleaned out at intervals throughout the life of the patient; this is no hardship if the patient remains within call of the ear surgeon, but that is not always the case, and then the cholesteatom becomes a menace to the comfort or life of the patient.

Of the labyrinth operations there are three types. The Hinsberg consists of an opening of the superior and horizontal canals at the exposed surfaces under careful protection of the facial and then the removal of the promontory wall. According to Barany this operation is only indicated in cases of fistula or serous labyrinthitis, when after a radical operation the patient has a continual dizziness and wishes to get rid of the same.

The Jansen operation is more complete, the whole triangle at the posterior internal surface of the operative field after the radical operation has been performed being removed, exposing dura and sinus. The bone should be removed as far as possible external and posteriorly to the sinus to start in with, as the operator must have room in which to complete his operation. The bone in the triangle bounded by the sinus transversus, facial canal and petrous sinus may best be removed by thinning and then placing the chisel vertically and chiseling on to a curette

placed between the bone and dura. This should be continued until the posterior canal has been opened, which will be recognized as a long oval opening in the horizontal axis as the patient lies on the table. The canal should be followed directly toward the horizontal canal until this one is opened. We now have three openings in view; two for the posterior canal, and one for the horizontal. The upper of the two posterior openings and that of the horizontal should be followed until the vestibule is entered, and as a last move the promontory wall removed.

The Neumann operation only differs from this in that the internal auditory canal is entered from behind by chiseling away successively small pieces of bone from the pyramid, this modification depending upon the observation made by Neumann that many cases of meningitis apparently start from a focus of pus at the bottom of the internal canal where the pia and dura are not in contact.

The Frey-Hammerschlag-Richards method I mention only to condemn. The operators open the canals without exposing the dura. It is a tedious method and where it is indicated the Hinsberg would be indicated, the latter having the advantage of being more easily performed.

This narrows our labyrinth operations down to practically two methods, the Hinsberg and the Jansen-Neumann, and the indications for the Hinsberg are so limited that one but seldom has occasion to use it.

Any labyrinth operation holds out great dangers for the facial nerve, yet one can readily see what a thorough knowledge of anatomy and good technic, as acquired on the cadaver, means when we say that neither Neumann nor Ruttin have ever had a facial paralysis following a labyrinth operation. The greatest dangers lie, first, at the inferior arm of the posterior canal; second, in a fracture through the facial ridge, caused by the chisels being used as a lever against it on removal of the promontory; third, in unskilled and unnecessary efforts on the part of the operator to pass a probe through the oval window into the canals. If the probe is used at all it should pass from behind forward and then with care.

The appearance of a number of articles by prominent aurists of late, describing labyrinth operations of the Hinsberg type in labyrinthine suppuration, shows plainly that the surgeon has not as yet grasped the full import of the Jansen-Neumann method of procedure. One of the principal objects in this method is the exposure of the meninges between the sinus and internal auditory canal in order to allow ready access to the cerebellum, this being desired on account of the frequency of association of cerebellar abscess and labyrinthine suppuration. If this exposure has been made and an abscess occurs subsequent to operation, or was present and not diagnosed at operation, it may be readily opened without an anesthetic by simply incising the dura and then plunging a brain knife into the cerebellum; the patient will feel nothing; whereas in all other methods of procedure the patient must be subjected to a second anesthetic and further bone removal.

I wish here also to emphasize what has so often been said before, that the man who operates upon a suppurating ear without first being thoroughly familiar with the condition of the internal ear is

making a grave, if not criminal error, as he has no way of judging the seat of progress of certain complications subsequent to operation. I have seen this very thing done by the most renowned surgeons with the most disastrous and unnecessary results and in the light of the present day knowledge of the complications of suppurative ear affections it is unpardonable.

As far as plastics are concerned, there are two types that it is well to know how to do quickly and well—the Panse and the Passow, and these may be modified to suit the operator's convenience. The Panse is a T-shaped incision with the long leg pointing toward the promontory; it may be made Y-shaped and the outer arms carried as far as the operator pleases into the concha as exhibited in the Siebenman and Neumann plastics. The outer flap of the Y-shaped plastic should be sewed back so as to present a smooth skin surface to the gauze packing, as the pain at dressing is much decreased by this simple procedure. The Passow flap uses the whole of the posterior wall as a single flap with an attachment at the internal superior angle. This is swung above and held in place by gauze. It is ideal for the Kuster-Bergmann operation.

For closure I am in the habit of using the clamps, which may be removed after 36 hours if an invisible wound is desired or left for five or seven days if the operator so wishes.

One of the most difficult chapters of the operative procedures is that of the aftertreatment. Better have a poor operation and good aftertreatment, than visa versa. Only after handling hundreds of cases in a large clinic does one realize how discouraging this part of the work is. The open treatment without skin graft is the method most often practiced at the present day and under it no two cases heal alike, one has a cavity filled with granulation tissue and epidermized, or there is a false membrane or a large cavity with epidermis lying in the bone and all grades between these. The scarlet red ointment 25% powder has helped to hasten the epidermization, but possibly the greatest advance has been in the perfection of the technic of the skin graft as practiced by Dr. Welty. Why the grafts were given up by Jansen and others in Europe I can not say, but possibly because the technic was faulty, leading to poor results. That a properly placed graft will save much worry and time there is no doubt, but strict attention should be given to asepsis and the dressing. Dr. Welty's technic consists of a thorough eradication of the diseased bone, and smoothing of the cavity with hand burs; the mucous membrane of the tube and promontory having been carefully removed, grafts of 1 by 1½ in. are placed in juxtaposition covering the entire cavity beginning at the tube; a dressing of small pieces of dry gauze is placed against the grafts, and over this others saturated with paraffin oil containing ½% solution carbolic acid, the mixture having been sterilized by heating three times to 150° C. Dressings are removed on the fourth day and the cavity irrigated with bichloride 1-3000 followed with normal salt solution. Dr. Welty claims for the method an improved hearing and rapidity of complete healing. That attention to detail has accomplished a large part of his success is without doubt.



## THE CONTROL OF PATHOGENIC ORGANISMS IN BUTTER.\*

By JOHN NIVISON FORCE, M. D., M. S., Berkeley.

### I. INTRODUCTION.

This paper is an attempt to outline a method for municipal control of the production of market butter. It is based on experiments conducted in conjunction with Mr. James M. Stephenson with a view to determining:

- (1) The vitality of pathogenic organisms in butter made according to commercial processes.
- (2) The efficiency of animal inoculation as a test for pathogenic organisms in commercial butter.
- (3) The efficiency of the bacterial count as a measure of butter contamination.

### II. VITALITY OF PATHOGENIC ORGANISMS.

Much has been done in recent years to regulate the production and distribution of market milk, following the publication of results of investigations into its disease-bearing powers. It is only recently, however, that attention has been called to the possibility of a source of danger to our later years, in the universal consumption of milk-fat after the dangerous raw milk period of life has been passed.

1. Review of Previous Investigations. Montefusco in 1896 determined that diphtheria bacilli lived for two days in butter though were not virulent after six hours. Pfuhl, 1902, found *b. typhosus* alive in butter at the end of 24 days. Brunk, 1903, and Broers, 1904, stated the vitality as 27 and 21 days respectively. Mohler, Washburn, and Rodgers, 1907, made sweet cream butter from milk contaminated directly from a culture of bovine tubercle bacilli and produced tuberculosis in guinea pigs when the butter was 153 days old. Washburn, 1908, in a careful series of plating experiments lost trace of *b. typhosus* at the end of 151 days, in salted butter, contaminated with a pure culture of the organism at the time of churning. Schroeder and Cotton, 1908, made sweet cream butter from the milk of a cow infected with udder tuberculosis, and produced tuberculosis in guinea pigs when the butter was 160 days old.

2. Methods Employed in Present Experiments. As far as can be determined none of these observers imitated the commercial method of souring the milk previous to churning, by means of starters. The butter used in these experiments was made as follows:

A quantity of fresh sweet cream was heated to 75 degrees C. for  $1\frac{1}{2}$  hours. Four days later the cream was still sweet. A tablet of lactone and one of

lacto-bacillose, two commercial mixtures of lactic acid forming organisms, were added as a starter to each quart bottle of cream. At the end of five days at room temperature, the sour cream was churned in portions of 200 cc. in a sterile glass churn. At the time of churning each portion, a culture of some pathogenic organism was added. The resulting butter was thoroughly worked with a sterile glass pestle, salted at the rate of an ounce to a pound, and stored in a sterile glass jar in the uniced portion of a refrigerator. Samples for animal inoculation were cut with a sterile knife, placed in small sterile ointment jars and melted by standing in warm water. The same precautions were used in the case of commercial butter samples, care being taken to secure a cut from the center of the piece obtained for experiment. One cc. of the melted butter was used for plating and 4 cc. doses were injected intraperitoneally into guinea pigs, using an antitoxin syringe.

3. *B. typhosus*. Portion of butter from 200 cc. of sour cream contaminated at the time of churning with an emulsion of a 24-hour growth of *b. typhosus* on an agar slant, in 2 cc. normal saline solution.

(1) Animal Inoculation. Pig No. 6, butter 9 days old, no apparent effect.

Pig No. 5, butter 9 days old, dead in 60 hrs., intestinal obstruction, prolapse of rectum, intussusception.

Pig No. 11, butter 16 days old, dead in 36 hours, dense consolidation of lungs.

(2) Cultural Experiments. Butter 41 days old. Bouillon tube inoculated, endo plate streaked with 24 hour growth on bouillon. Bouillon tube inoculated from 24 hour growth on endo plate of small water drop colonies. Growth on bouillon at the end of 24 hours precipitated by 2 drops of serum from horse immunized to *b. typhosus*.

Butter 62 days old. Same procedure, omitting precipitation by horse serum.

Butter 71 days old. Bouillon tube showed heavy growth at surface. Sub-culture on bouillon showed same flaky growth of *B. subtilis*. Immune horse serum caused disappearance of bacilli from upper layer of bouillon.

Butter 150 days old. Repeated plating showed butter sterile.

4. *B. diphtheriae*. Portion of butter from 200 cc. of sour cream contaminated at time of churning with an emulsion of a fresh virulent culture of *b. diphtheriae*.

(1) Animal Inoculation. Pig No. 7, butter 11 days old, no effect. Re-inoculated 42 days later with buttermilk from a fresh churning. Dead in 18 hours. White necrotic membrane at site of inoculation, enlarged inguinal glands, punctate congested spots in liver, ecchymotic spots on surface of lungs. Adrenals dark red.

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Pig No. 8, butter 11 days old, no effect. Re-inoculated 43 days later with butter 1 day old. Dead in 24 hours. White necrotic membrane, congested points on spleen and liver, ecchymotic lungs. Adrenals dark red.

Pig No. 13, butter 7 days old. Ill for several days, but recovered.

Pig No. 6, emulsion from blood serum culture 18 hours old made from butter 10 days old. Dead in 84 hours. Patch of gelatinous edema and necrosis at site of inoculation, inguinal glands swollen, adrenals intensely congested.

Pig No. 12, emulsion from blood serum culture 18 hours old made from butter 13 days old. Dead in 48 hours. Patch of extreme congestion at site of inoculation, all cavities filled with fluid, no membrane, no necrosis, adrenals normal.

(2) Cultural Experiments. Butter 10 days old. 18-hour culture on blood serum, morphologically *b. diphtheriae*.

Butter 11 days old. 18 hours culture on blood serum, morphologically *b. diphtheriae*.

Butter 21 days old. 18-hour culture on blood serum, shows a large number of cocci with very few *b. diphtheriae*.

5. *B. tuberculosis*. Portion of butter from 200 cc. sour cream contaminated with 4 cc. of bouillon on which was growing a strain of bovine tuberculosis used for making tuberculins by the Cutter Laboratory.

Pig No. 2, butter 12 days old, 53 days after inoculation injected subcutaneously 2 cc. old tuberculin, human. Dead in 28 hours. Adhesions, mesentery and omentum matted, 1 small whitish patch in liver. One small patch in spleen, lungs congested, large quantity of fluid in pleural and peritoneal cavities.

Pig No. 9, butter 19 days old. 46 days after inoculation gave 2 cc. old tuberculin, no results. Three days after first injection of tuberculin repeated dose. No result.

6. Material from infected cow.

Portion of butter from 200 cc. sour cream contaminated at time of churning with 1 gram of feces taken from the colon of a cow in advanced tuberculosis. Material 20 hours old.

Pig No. 1, butter 11 days old. 53 days after inoculation gave 2 cc. old tuberculin. Pig dead in 28 hours. Glands enlarged, numerous tubercles in spleen and liver.

Pig No. 10, butter 18 days old. Pig dead after 22 days. General adenopathy, liver covered with small white spots, spleen congested, smears from glands and organs negative. Milk contaminated with feces from this cow caused tuberculosis in a guinea pig inoculated by McCullough.

Pig No. 13, butter 77 days, covered with green mold. Pig dead in 26 hours, congestion around site of inoculation, spleen congested blood in pleural cavity, peritoneal cavity contains butter flakes and molds.

### III. EFFICIENCY OF ANIMAL INOCULATION AS A TEST FOR COMMERCIAL BUTTER.

Portions of butter purchased in open market, all high grade, sealed carton goods, except Butter No. 2 which was wrapped in paper.

1. Inoculation with Commercial Butter Samples. Pig No. 14, 4 cc. Butter No. 1 repeated in 35 days. Pig dead on 47th day. 115 grams loss of weight. Enlarged inguinal and femoral glands. Adhesions and cheesy tubercles throughout peritoneum, nodules on spleen and liver, congested lungs.

Pig No. 15. Butter No. 2 repeated in 35 days. Pig dead on 38th day. Slight congestion at site of inoculation. Glands enlarged. Omentum matted. Mesenteric glands caseous and purulent. Scattered tubercles on liver and spleen, lungs congested. Smears from glands show an acidfast bacillus, which did

not produce a growth on ordinary media. Rabinowitsch's butter bacillus grows on ordinary media in two days.

Pig No. 16. Butter No. 3 repeated in 35 days, pig dead in 18 hours, liver and left adrenal fatty, pale and soft, lungs congested.

Pig No. 17. Butter No. 4 repeated in 35 days, pig dead on 47th day. Enlarged glands, peritoneum full of adhesions and cheesy degeneration. Nodules on spleen and liver. Pus from glands showed acid fast bacillus. Loss of weight 130 grams.

Pig No. 18. Butter No. 5, repeated in 35 days, dead in 36 hours. Site of inoculation deeply congested, glands near site enlarged, lungs congested.

2. *Résumé of Inoculation Experiments:* *B. typhosus* was present in sour cream salted butter at the end of 62 days and grew vigorously in subcultures. Animal inoculation is not a satisfactory test of vitality or presence in commercial butter.

*B. diphtheriae* remained in sour cream salted butter at the end of 21 days and could be recognized morphologically from cultures though in small quantities. The butter was no longer pathogenic for guinea pigs at 7 days, but the virulence was so increased by growing 18 hours on blood serum that a guinea pig inoculated from the blood serum culture died in 3 days. The local reactions grew progressively less in this series. Suspected butter then could not be tested for *diphtheriae* by animal inoculation beyond the first week. *B. tuberculosis* added in no greater quantities than would probably come from accidental fecal contamination in milking, was able to produce the disease in guinea pigs after the tenth day. The rapid development of accompanying molds prevented later data from this butter. Substantially the same results were obtained with three commercial butters out of the five inoculated into guinea pigs. One of these butters is generally made from pasteurized cream, though this rule is not absolute.

I have been informed by Mr. Stephenson that he has carried on the tests which we began, and has found that out of ten butters delivered to the University Farm, at Davis, six produced tuberculosis in guinea pigs.

The effect of *B. tuberculosis* in pure culture from the Cutter Laboratory was only to render one animal susceptible to a dose of 2 cc. of tuberculin, no lesions being demonstrated when the pig died from the effects of this dose given to exclude the possibility of infection by Rabinowitsch's butter bacillus. This was no doubt due to the attenuation of the bacillus from long cultivation on artificial media. Guinea pig inoculation with subsequent dosing with 2 cc. of old tuberculin can then be safely assumed to be a satisfactory test for tuberculosis in suspected butter.

### IV. EFFICIENCY OF BACTERIAL COUNT.

1. Method Used in Preparing Plates. The general method used in making the count consisted in the dilution of 1 cc. of melted butter with 99 cc. of sterile water at 40 degrees C. Various dilutions were made from the first, plates of standard plain agar poured and incubated for 48 hours. The growth of the lactic acid producing organisms under these conditions is far less rapid than that of other organisms. The following plates illustrate the general findings from a large series. The most satisfactory dilutions for butter plating were found to be 1 in 10,000 and 1 in 100,000.

2. Description of Plates. Plate No. 1. This was a high-grade butter made under careful conditions. The sample was 3 days old, count 400.

Plate No. 2. This was a high-grade butter made from selected cream under careful conditions. The butter was about 1 week old, count 200.



Plate No. 3. This was an ordinary butter somewhat older than No. 2. Count 90 molds, 75 bacteria.

Plate No. 4. This was an ordinary butter about 3 weeks old. Count 18 molds, no bacteria.

Plate No. 5. This was a sample of stale butter. Count 3 molds, 1 bacterium. This series illustrated the gradual decrease in bacteria with a secondary wave of mold increase and decrease with the age of the butter.

Plate No. 6. This shows the same butter used for plate No. 1 grown on lactose agar. It shows a small number of contaminating molds and cocci as well as numerous small colonies of a pure culture starter.

Plate No. 7. A plate of an ordinary butter under the same conditions as plate No. 6.

Plate No. 8. A sweet cream butter prepared with no starter, yet showing numerous lactic-acid producing colonies, on litmus lactose agar.



Conclusions: The bacterial count of butter can never serve as a measure of contamination of the product, for the reason that bacteria decrease as the butter grows older. Standard agar plates, however, showing a preponderance of molds over bacteria are a slight measure of the age of butter and lack of attention to cleanliness of utensils.

#### V. MUNICIPAL CONTROL OF THE PRODUCTION OF MARKET BUTTER.

1. Importance of Control of Methods of Production. There are three individuals chiefly concerned in the passage of butter from cow to consumer, and it is to them that any municipal scheme of butter control must be applied. Of the three the grocer attracts the least attention. In general he delivers a small, finished package, and popular

opinion demands that this package be clean and attractive. It is possible to purchase many brands of butter wrapped in paper and sealed cartons. The provisions of a general food-screening ordinance will provide for the proper care of bulk butter. In the present state of dairy education it would be manifestly impossible to obtain the cream from milk of even the inspected grade. The small dairyman working with a hand-separator for about a week has been slowly accumulating a can of cream. This he sells to the creamery on a basis of butter-fat contained, no questions being asked as to age or cleanliness. There is no incentive for improvement in the cream supply from the dairyman's standpoint. The burden of control, therefore, is reduced to the buttermaker and only by careful attention to his methods and equipment can he produce a disease-free butter. In devising any ordinance affecting a large item of production reward is of much more service than punishment. The fact that the names "certified" and "inspected" are given as a reward for clean milk production has an educational value to both producer and consumer. Any scheme of control for butter making, should recognize this fact.

2. Proposed Score Card for Butter Making Establishments. The Bureau of Animal Industry of the U. S. Department of Agriculture using as a model the card originated by Dr. W. C. Woodward, Health Officer of the District of Columbia, issued a score card for dairy farm, milk-depot and creamery, in 1904. In 1906 the cards for farm and depot were modified to provide for separate scoring of methods and equipment, and in this form are being extensively used throughout the country. No change was made in the creamery score-card and it is, therefore, inferior to the other two. The accompanying card has been devised to bring the creamery score-card up to the standard now set by the farm and depot cards. The important points in sanitary butter-making are the securing of a fresh cream supply not over 24 hours old in summer or 48 hours in winter, the efficient pasteurization, souring by means of a pure or mixed culture of lactic acid producing organisms, churning, salting and working in closed containers, and the subsequent molding and wrapping in well screened rooms with steam sterilized utensils. Butter made under these conditions could be designated, "Pasteurized Cream Butter" and guaranteed under the Food and Drugs Act.

3. Proposed Score Card for Butter. In the examination of samples of this butter the present B. A. I. cards for judging milk and cream can be taken as models and a modified butter score-card devised. Such a card would combine the old items of flavor, grain, color, salt, and package, with chemical tests for acidity, fat and moisture, and special credit for butter certified by a medical milk commission, or guaranteed under the Food and Drugs Act, if made from pasteurized cream.

Acidity is not a measure of the quality of butter but exhaustive experiments conducted by Larsen, Lund and Miller, at the South Dakota Experiment Station, have shown that the acidity of 300 samples of butter not more than one week old averaged near

2.00, while the acidity increased rapidly with age. The acidity was measured in terms of cc. of decinormal alkali neutralizing 10 grams of butter fat extracted with 20 cc. ether and 10 cc. alcohol.

Pasteurization of cream has also been shown to improve the keeping quality of butter and to prevent the acidity from rising so rapidly. The liberal use of steam in sterilization of utensils has a marked effect on the flavor of the butter and the prevention of mold.

In short, the measures which control the growth of pathogenic organisms in butter are also justified by an improvement in quality, flavor, and keeping powers.

This report is accompanied by photographs showing the results of plating experiments and by score-cards for creamery and butter inspection.

CITY OF BERKELEY

Commissioner of Public Health and Safety

HEALTH DEPARTMENT

Bureau of Food Inspection

Permit No. .... Date .....19....

Trade Name.....Owner .....

Location .....

DETAILED SCORE FOR SANITARY INSPECTION OF BUTTER-MAKING ESTABLISHMENTS

Equipment	SCORE		Remarks
	Perfect	Allowed	
Plant:			
Location .....	18		
Convenience .....	6		
Surroundings .....	12		
Arrangement .....	7		
Proper rooms .....	3		
Convenience .....	4		
Construction .....	9		
Floor .....	5		
Walls .....	3		
Ceiling .....	1		
Light .....	1		
Ventilation .....	1		
Screens .....	1		
Machinery .....	20		
Kind and quality.....	7		
(Steam, ice, cold storage, separator, pasteurizer, ripener, churn, mold, cutter, paddles.) .....			
Condition .....	7		
Arrangements .....	6		
Water Supply .....	28		
Wagons .....	4		
Construction .....	2		
Condition .....	2		
Salesroom .....	11		
Location .....	1		
Construction .....	4		
Equipment .....	3		
	100		

Methods	Perfect	Allowed	Remarks
Plant:			
Cleanliness .....	15		
Floor .....	6		
Walls .....	4		
Ceiling .....	1		
Doors .....	1		
Order .....	1		
Odor .....	1		
Windows .....	1		
Machinery:			
Cleanliness .....	25		
Butter:			
Handling .....	40		
Separating .....	5		
Pasteurizing:			
Continuous .....	10		
(160-176 deg. F. for 1 min. Cool to 70 deg. F.) .....			
Intermittent .....	8		
(140 deg. F. for 20 min.) .....			
Ripening .....	5		
Care of starter: .....			
Churning .....	5		
Working and salting.....	5		

Molding and cutting....	5		
Wrapping .....	5		
Storage .....	5		
Wagons .....	6		
Cleanliness .....	3		
Protection .....	3		
Salesroom:			
Cleanliness .....	3	9	
		100	
(Equipment multiplied by 1 equals....., plus methods			
(Equipment multiplied by 1 equals....., plus methods			

Remarks .....

.....

Milk Inspector.

CITY OF BERKELEY

Commissioner of Public Health and Safety

HEALTH DEPARTMENT

Bureau of Food Inspection

SCORE CARD FOR MARKET BUTTER

Vendor .....Date .....

Address .....Permit No.....

QUALITY			60
	Perfect	Allowed	DIRECTIONS
Flavor .....	26		Deduct for objectionable flavor or odor.
Grain .....	15		Deduct according to air spaces.
Color .....	9		Deduct according to mottling.
Salt .....	6		Deduct if under or over salted.
Package ...	3		Allow sealed carton 3, wrapper 2, tub 1.

ANALYSIS			40
	Perfect	Allowed	DIRECTIONS
Butter fat..	15		85 per cent. perfect; 1 credit off for every 0.5 per cent. less. 82.5 per cent. U. S. standard.
Moisture ...	10		12 per cent. perfect; 1 credit off for every 1 per cent. more. 16 per cent. U. S. standard.
Certification	10		If marked "Certified Butter" as defined by the Milk Ordinance of Berkeley, allow 10.
Acidity ....	5		2.00 or less, perfect; 5.00 allow 4; 10.00 allow 3; 15.00 allow 2; 20.00 allow 1.

Total Score: Quality ( ), plus analysis ( ), equals .....

Milk Inspector.

### THE DETERMINATION OF SEX IN THE HUMAN SPECIES.

By MRS. DAVID McCONNEL, Student in Stanford University.

The general conclusion more or less clearly grasped by numerous investigators is that the most favorable conditions of life tend towards the production of the female. For instance, the larvæ of the bee when fed on certain quality of food produce the queen mother from the quality of egg common to both worker and queen. Caterpillars highly fed before they enter the chrysalis state become by and by the egg-laying moth or butterfly. The aphides of our rose trees placed under best climatic conditions produce generation after generation in which the female predominates. The same thing has been demonstrated in the plant kingdom. But when the principle comes to be applied to the human species it fails in the application of certain conditions which seem to control the lower orders. That is to say,



the best quality of food, the most suitable climatic conditions, the most favorable environment, fail to produce the female or even to aid in race production. To live on the confines of starvation does not tend to decrease the reproducing power in man nor to give him a preponderance of sons over daughters; quite otherwise. It is an old adage, "The daughter to the hind, the son to the squire," and it may still be applied with truth; for we know that to the working woman may be born as many daughters as sons. Hardship does not offer sons as nature's recompense; neither do daughters necessarily follow after the life of ease and well nurtured physical condition of a better placed woman, when she becomes a mother.

Statistics appear to prove that in times of war and famine more sons are born than daughters, as a kind of readjustment of nature's forces, some writers conclude; but to my mind this is wholly unscientific, and I take it that the reason for the facts of the figures lies in a direction other than that of immediately unfavorable surroundings, and may be found in difficulties which attend the frequency of intimate domestic relations at such times.

However, if the most favorable conditions tend to the production of the female in the lower orders to such an extent that it has come to be regarded as a law controlling the determination of sex, some confirmation of the same law must be found in the human species.

My reasonings on the matter have led me to the following conclusions:

1. That the greater the differentiation the higher the species, the more limited the reproductive power the more confined the method of reproduction. All extraneous influence affecting reproduction in the lower orders has passed away in the higher, and the power to produce the female is vested, so to speak, not in the individual, but in the ovum. That is to say, no condition affecting the nurture of the mother herself has any power in determining the sex of the offspring, but it is determined by some condition inherent in the ovum, and common to all women at certain times.

2. That the male element has no influence in determining sex.

3. That the sex of the future child is determined at impregnation by the condition of the ovum at the time.

4. That the fullest development of the ovum produces the female after impregnation.

5. That the male is produced by impregnation either before the fullest development of the ovum, or after waste begins to take place.

6. That given normal physical conditions of health in the woman, that is to say, menstrual period recurring every twenty-eight days and continuing five days, that the ovum reaches its fullest de-

velopment immediately before menstruation and continues to preserve that condition until two days after the cessation of the period.

7. If fertilization take place from one to two days before the period or from one to two days after the cessation of the period a female results, the latter method being the most successful.\*

8. If fertilization take place from four to eight days after the cessation of the period or from three to five days before menstruation the male results, the latter being unusual.†

9. That to put the theory into practice with hope of success no possibility of conception at any other time than those mentioned must be permitted.

I have drawn these foregoing conclusions from the peculiar circumstances of my own experience; and after sixteen years of experiment, thought, and carefully obtained evidence I am strengthened in my opinion.

It must be borne in mind that to obtain human evidence on such a delicate matter is most difficult; also that women are not in the habit of keeping data. I have found that in cases where experiment has not produced the desired result, carelessness in keeping dates, or inattention to details of method have been responsible for the apparent failure of the plan. But I can assert that every experiment carefully carried out has resulted as desired, when the conditions of health and of physical development have been normal.

It would be impossible for me to give a large number of my experiments, and for obvious reasons as impossible to give names of those concerned in them; but I will give instances, also the history of my own experience which led to my formation of a theory.

My first birth was that of twins, a boy and a girl. I knew that conception could only have taken place on the second and fifth day after the cessation of the period, which did not again appear. The children were born prematurely, seven and a half months after conception, and there was a marked difference in the circulatory power between them, the girl being much more certain of life than the boy; also there were two placentæ; this led me to believe that their existence had begun separately and that the girl had had more time to develop than the boy. My nurse, who was certificated of the Melbourne Maternity Hospital, with fifteen years of experience, told me that she had never succeeded in rearing a boy born prematurely at six and a half months, but that she had been successful with girls.

On looking up statistics I found that of deaths following upon premature births the percentage was much larger in the case of boys than of girls; while of children who had come to perfection at birth, the ratio of deaths of boys over girls was in favor of the life of the girls, which looked as though girls had more inherent strength to come and go upon. Hence my first conclusion that the female was produced from the best condition of the ovum at the time of impregnation, as common sense showed me that it could not be produced from the best conditions of life in the mother. Now to find

the time at which the ovum was in the best condition to be fertilized remained to be proved. The knowledge that my twin girl was conceived two days after the cessation of the period furnished me with a premise for my conclusion, the soundness of which I proceeded to demonstrate by experiment. I had two sons after the birth of the twins conceived respectively on the fourth and fifth day after the cessation of the period. It was not until after the last birth that I persuaded other women to try the method.

The first experiment was tried by a woman who was very delicate and who would not, except in the hope of a son, have jeopardized her life again. Conception took place four days after the cessation of menstruation and her boy was born nine months later. She in her turn passed on the method to a friend, who also had a son. Another instance was that of a girl conceived a day after cessation of menstruation. It was stillborn, but the mother succeeded the next year in having a daughter. Another mother tried month after month for nearly a year, allowing no other possibility, and at last succeeded in having a daughter; some three years later she had another daughter, conceived one day before the period; this was not by intention, but she had grown into the habit of keeping dates and knew when conception took place.

Of boys conceived by intention I have numerous instances. One case is particularly interesting, where five daughters preceded and where the history of the family pointed to a dearth of sons; conception took place five days after cessation of menstruation, and a boy was born in due time, followed by another boy conceived by intention. Perhaps the most interesting case is the following: A woman married late in life, between thirty-five and forty; her husband was most anxious to have a son to inherit his property. The wife asked my advice, which she followed for two years, having no result; she then came to see me. I advised her to give up the hope of a son, and take her chance of either son or daughter, as I felt she was perhaps losing the hope of children at all, but she persisted; so I asked her to see a doctor, which I believe she did; she had a son within the year, who died at birth; the next year she had another son, and has now a daughter who was conceived by intention two days after the cessation of menstruation.

I could mention many more such cases. Of evidence deduced from women's experience, I have gathered a great deal. One mother who found that she could not afford a larger family tried to retard her responsibilities by putting off marital relations as long as possible after menstruation, the result being that all her late children were sons; one girl followed late in life conceived one day before the period. I know of several instances of children being born three weeks later than they were expected, being in each case girls.

I have noticed that where no undue interference takes place in domestic relations, where life is even, and the head of the house always at home, that daughters preponderate, the inference being that ordinary relations are resumed after cessation of menstruation; on the other hand, sailors, surveyors,

and such men whose home life is resumed at uncertain intervals, have generally more sons than daughters; again I have noticed that women who are naturally prudes have more sons than daughters; on the other hand, that women having warm natures, or who have been trained like the women of the European royal families to a subservient marital attitude, have more daughters than sons.

My own observation in the animal kingdom has led me to the same conclusion. We have had during fifteen years three generations of Shorthorn cows, and in all cases we have found heifer calves result when the animal's needs have been attended to immediately. Then again in the fowl yard I have found that a hen's first set of eggs produced a majority of females. It has nothing to do with the age of the hen herself. It is the first set of the season in which the female preponderates.

There are, of course, exceptions to all rules, but they lie, I feel sure, at all events in the human species, in abnormal conditions, where peculiar formation tends towards the retention of the ovum and conception takes place long after menstruation, or where the monthly period may not be reckoned by dates, in which case no plans can be laid; or where menstruation is absent, too profuse, or of too long continuance.

\* Of the results of fertilization the third day after the cessation of the period I can give no opinion, not having obtained any evidence.

† If fertilization take place from five to three days before the period a male results, and in that case menstruation demonstrates itself and the child appears to be born before its time; but if fertilization take place just before the period, say from two to one days, a female results, and menstruation does not generally demonstrate itself, and the birth takes place three weeks later than it was expected. The count should be taken from the date of conception, whereas women count it from the cessation of the period; hence if a male is conceived days before the period, which for some unknown reason demonstrates itself in this case, he is born at a corresponding time, but the mother has counted from the cessation of the period and is out some eight days or so; whereas if conception takes place immediately before the period a female results, but for some reason menstruation does not in that case appear and the mother counts from the cessation of the previous period and thinks she has had to wait some three weeks over her time. I cannot account for these phenomena unless one may reason, that if conception takes place immediately before the period that the ovum being then in its most perfect condition nature is satisfied, and the internal mouth of the uterus is closed; whereas if conception takes place some days before the fullest development of the ovum, the ordinary processes continue because the most perfect state of the ovum has not been accomplished although conception has taken place. This is only surmise on my part, but of the phenomena I have had evidence.

## THE SENILE SKIN.\*

By HARRY E. ALDERSON, M. D., San Francisco.

Old age need not be defined, its significance becomes known to all objectively at a very early period and it is experienced subjectively by the majority sooner or later. To the adage, "A man is as old as his arteries," might often be added "and as old also as his skin,"—for various changes indicative of senility appear early in the skin where they can be plainly observed. That these senile changes are seen earlier in some than in others is a fact of common knowledge,—habits, environment and to some extent hereditary tendencies determining the same. The average person attains the position where he can avail himself of many of the luxuries of life at the period in his physical development when he can

\* Read before the Alameda County Medical Society, March 21, 1911, and the Sonoma County Medical Society, April 7, 1911.



least afford to indulge himself much without paying Nature's penalties sooner or later. At the same time he can also avail himself of many comforts that go to make life easier and can take better care of himself. But with the means there is not usually the inclination to do the sensible thing and such is human nature that overindulgence is more apt to become the rule. Continued overindulgences of various sorts are prime factors in hastening the various senile or degenerative changes and are effective in inverse proportion to the constitutional resistance of the individual. Thus various excesses (in particular alimentary) are very prone to bring about or aggravate that common condition known as seborrhea, which forms a basis for so many degenerative conditions of the skin in later life, and that this will occur the earlier in the weaker members of the human family goes without saying. Said weaker members are brought into that susceptible class either by early excesses or hereditary tendencies. However, the average man does not succumb to these influences until about the age of fifty and the woman at the climacteric, when the period of senescence may be said to have begun. At this time there begins a very slow progressive waning of the various functions with degeneration and atrophy of the tissues.

Forces which in earlier life produced no apparent effects begin to do so at this time. Among the most potent of these forces are the sun's rays, heat, cold, wind and dust. Toxins from the gastrointestinal tract undoubtedly have a very great deal to do in contributing to the producing of these changes. These effects, of course, are most pronounced on the exposed parts, as the face, neck and dorsal surfaces of the hands, where changes indicative of senility first become very apparent.

The characteristic senile skin is relatively thin, dry and often scaly, inelastic, wrinkled and furrowed and of a yellowish color; the areas that normally have much pigment now show an increase,—these areas being especially the face, dorsum of hands, nipples, genitalia, region of the anus and lower extremities (the increased pigmentation occurring in variously sized macules or in large patches); the hair may fall out, "regress to the lanugo type" (Jackson) and lose its pigment; there may appear, especially on the parts exposed to the elements, small brownish, greasy crusts, pea sized or somewhat larger, usually very slightly adherent, but often warty and firmly attached; the subcutaneous fat often atrophies, which makes the increased thinness of the skin all the more apparent. Telangiectases are very prone to develop. Senile keratoses and other lesions appear. These will be discussed later.

These various features are based on the following histological appearances: The main part of the process consists of atrophy and drying of the prickle cell layers and increased development of the pigment in the basal layer. In the corium are seen various forms of degeneration of the collagen and the elastic fibers. Fat cells are much diminished in amount and the subcutaneous fat is usually very much reduced. The sebaceous and coil glands are dilated and often have their ducts full of debris. Some of

the blood vessels are dilated and others have thickened walls or they are obliterated. The hair follicles are often shorter. The whole process is one of atrophy in which all of the structures in the skin participate more or less, the epidermis and corium often being so thin that rete pegs and papillae are not to be seen.

*Pruritus Senilis* is a common condition or rather a symptom which often causes great discomfort and even suffering. The only objective signs that may be present are increased pigmentation and excoriations or later local thickening, caused by scratching. In the pruritus that often goes under this name there can usually be found some underlying cause such as digestive disturbance or some liver, kidney, arthritic or circulatory disorder with associated defects of metabolism or elimination so common in those past middle life. The writer has frequently been able to find an intestinal indigestion or renal insufficiency and several times lately a condition of hypothyroidism as causative factors, all of which go to illustrate the fact that in the dry atrophic skin of old age a pruritus is very prone to develop. Aside from all this, however, there is a senile pruritus proper which is due primarily to the atrophic and degenerative changes in the senile skin.

*Alopecia senilis* may occur at any time after the forty-fifth year and is due to the progressive atrophy of the scalp which develops along with the atrophy of the rest of the skin. The smooth, shiny, oily and often tight appearance of such a scalp are all indicative of atrophy. Senile alopecia is symmetrical, usually begins over the vertex and gradually spreads mostly in an antero-posterior direction. The various types of baldness of age are so familiar that further description is unnecessary. The condition may follow graying of the hair or may accompany it. As the hair follicles all over the body become more or less atrophied, this thinning of the hair may become very pronounced in various parts of the body as well as on the scalp.

A very common condition seen on the senile skin, particularly on the hands and face, is that called *Keratosis senilis*. The lesions consist of flattened, more or less scaly, rough, slightly raised patches, yellowish or blackish in color, often greasy and varying in size from that of a pea to a finger nail or larger. They may consist merely of dry, adherent scales made up of cornified cells. They may occur also on the forearms, legs, genitals and rarely the feet. These lesions are serious enough to warrant prompt attention because of the fact that they are on the borderland, so to speak, of epithelioma. In fact, at times it is very difficult to determine where the one ends and the other begins. They are usually very indolent and may persist for years without any subjective symptoms. As the lesion grows older it shows a tendency to become thicker and often there is some irritation around its base. Frequently these lesions are surrounded by telangiectases. They are very prone to become epitheliomatous when aggravated and often various stages may be seen on the same person in close relationship to one another, for example a simple keratosis, an irritated keratosis and epithelioma. Some individuals show this tendency to develop epitheliomata more than others.

Sometimes it appears to be a family trait. While it is usually a condition of old age, it may occur earlier in life. It is more apt to develop on a seborrheic skin,—in fact it can be considered as one of the late complications of seborrhea. Exposure to the elements, more particularly wind and irritating dust may be exciting causes. Histologically one finds great thickening of the stratum corneum with retention of the nuclei of the cells. This process extends into the mouths of the sweat glands and hair follicles which are often further obstructed by horny plugs. Hartzell found that the stratum granulosum had largely disappeared excepting around the openings of the coil gland ducts and the hair follicle openings. A condition very closely approaching that of epithelioma is seen in the older lesions. Sometimes the sweat gland ducts are obliterated by the proliferation of the lining epithelium and cystic formations occur in them, or there may be simple dilatation. Cellular infiltration is frequently seen around the glands. The usual other histologic appearances of senile skin are also present.

The *Cutaneous Horn* is another of the complications of senile skin. It is really a miniature horn and is firmly attached to a basal process that often shows irritation and beginning epithelioma, especially if of long standing. They vary in size from a fraction of an inch to several inches in length (some have been reported fourteen inches long). They are usually single but there may be more than one. They are found on the scalp, temples, forehead, nose, lower extremities and the male genitals and trunk. Usually they arise from a senile wart, but they may also originate from a sebaceous cyst.

By far the most serious complication of the condition under consideration is *Epithelioma* which may be defined briefly as carcinoma beginning in the epithelial structures of the skin. These neoplasms appear as pearly nodules, vegetations or ulcers with raised, hard, waxy-looking borders, frequently with telangiectases extending over or around them. The picture is familiar to all. There are two great types, the *basal-cell* (the familiar rodent nodule or ulcer) and the *prickle* or *squamous-cell* epithelioma. The *rodent* is usually superficial and relatively benign, but it may become invasive and destructive. It is made up of cells originating in the basal layer of the epidermis and its direct connection with the epidermis can be demonstrated. The *squamous-cell* epithelioma is a more serious affair. It is composed of prickle cells of the type seen in the middle stratum of the epidermis and shows a decided tendency to invade deeply, to metastasize and involve the lymph glands. In these solid masses of prickle cells the familiar horny pearls made up of cornified cells arranged in concentric whorls are seen in large numbers. It is on the seborrheic skin that these neoplasms are very prone to develop and any of the various lesions of senile skin already mentioned can form the basis of the same. The occurrence of these pre-epitheliomatous conditions and their gradual development into epithelioma when irritated for any length of time furnishes an exception to the rule

advocated by adherents of the Cohnheim theory which assumes that "cell rests" form the basis of the various neoplasms. As Fordyce has observed, "the weight of evidence in the majority of cutaneous neoplasms is not in favor of the embryonal cell rest theory." Of the various factors that can stimulate the epidermal cells to an abnormal degree, are microorganisms and their toxins for example: large fungating masses caused by a chronic staphylococcus infection, tuberculosis verrucosa caused by the tubercle bacillus, marked hyperplasia due to the presence of the organism between the epithelial cells in yaws, granulations and acanthosis in blastomycosis, condylomata and leucoplakia in syphilis, and also chemical substances such as tar and its derivatives, paraffine, arsenic, tobacco, scarlet red and the various light rays. It is interesting to relate that indol, skatol and other products of intestinal fermentation, injected into the ear of rabbits by Stoker and Wacker (quoted by Fordyce) brought about a condition very much like carcinoma. Adami observes that so long as a cell is engaged in the performance of its function it uses up its energy and cannot at the same time conserve energy for proliferation, but with a disturbance or interference with its function conditions are changed and the vegetative powers of the cell gain the ascendant. "Skin cancers afford much evidence that they start from degenerated epithelial cells as in leucoplakias, keratoses, degenerations brought about by light (solar and X-ray) and chronic inflammatory processes" (Fordyce). This phase of the subject cannot be further discussed here because it would involve so many considerations that it would lead us far afield, and time forbids. Suffice it then to observe that epithelioma is a disease of middle life or old age and that the various lesions and degenerations found in the senile skin are potentially precancerous conditions which only require the proper stimulation to start them on their destructive course. Of these various states senile keratosis is the most important and therefore calls for early radical treatment.

*Treatment.* Toward remedying established senility, of course nothing can be done (at present old age is an incurable disease) but, as every one knows, prophylaxis in the form of rational hygienic living begun in early life and carried through all the years will postpone the state of senescence.

To keep this paper within due bounds, the writer will limit his account of the special treatment of these various conditions to a consideration of some few measures which he has personally observed to be effective. That proper care of the skin and hygienic living in the effort to keep all the tissues of the body in a proper state of nutrition, and the reasonable protection from the deleterious effects of the elements will postpone the onset of these lesions is so evident that it is hardly necessary to mention the fact. Even in middle life when senile changes appear to be imminent the nutrition of the skin may be improved by salt and bran baths, massage, oil inunctions, exercise and electricity. *Senile pruritus*, that is, pruritus in the aged due to no discoverable cause is often exceedingly obstinate. There are many remedies recom-



mended for the relief of the condition. A two per cent. salicylic acid ointment has been found very useful. Also a ten per cent. solution of Spiritus mentha pip. in glycerin and water (equal parts), has often proven valuable in the writer's service. In some of the aged patients with dry skin the writer has successfully given thyroid substance in 12 centigram doses (*the patients being kept under the watchful eye of the nurse while taking the drug*). Electricity, and hot and cold douches in some cases requiring stimulation have proven useful. In simple cases the supplying of the deficient oil of the senile skin by daily inunctions with olive oil or some simple thin ointment has relieved the condition. In all of these cases by improving intestinal and renal elimination and also by relieving any intestinal fermentation the other treatment is greatly aided. There is a long list of antipruritics from alcohol to zinc, but the writer has found the foregoing of special value.

*Rosacea and simple telangiectasis* when established call for destructive measures for their relief, of which electrolysis carefully performed is one of the best.

*Alopecia senilis* of course cannot be cured when once established but its onset can be delayed or even prevented by early attention. Prophylaxis should begin in infancy and continue through life. The persistent treating of any existing seborrhea capitis is of course of extreme importance.

*Keratosis senilis* is best prevented by treating early any seborrhea but when it becomes well developed it is most readily removed by simple curetting and then cauterizing the base of the lesion. Trichloroacetic acid crystals are very efficacious when applied for this purpose. In the simple forms of this condition an ointment containing from 4 grams to 16 grams of sulphur in 32 grams of vaseline or cold cream rubbed in twice daily after first washing with hot water and soap will usually remove the lesions. If the lesion is very thick salicylic acid (1 to 5%) may be added to this ointment. Those which this ointment will not remove can be permanently destroyed by the curette and caustic already mentioned and the resulting scar will be faintly marked. The X-rays will cause rapid subsidence of these keratoses. In the sun's light there are actinic rays which have much to do with the producing of senile keratosis and superficial epithelioma. These effects are brought about through irritation. Irritation if carried a few degrees further in the case of degenerating cells results in destruction and so the sun's rays can be utilized. By concentrating these rays through a lens on keratosis senilis for prolonged periods the same can be caused to disappear. The writer has made use of this fact recently in treating keratoses on a patient ninety years' old.

The writer has had a patient with psoriasis expose some of his lesions to the direct strong sunlight for an hour or two daily for a week and the area thus treated has promptly cleared up. These actinic light rays were utilized by Finsen in his successful treatment of lupus vulgaris. In this connection the fact that lupus vulgaris is compara-

tively rare in sunny Hawaii, and California and other sunny climes suggests the interesting theory that perhaps the actinic rays of the sun may be important factors here.

*Epithelioma* in every case demands thorough treatment, the earlier the better. This treatment will be outlined as briefly as possible. In the first place it is of the utmost importance to diagnose the type of the disease. This is accomplished by a biopsy and microscopic examination. The squamous cell type is more malignant and involves the glands sooner or later unless properly treated, so from the earliest a radical operation going well outside the lesion and taking in all the involved glands is decidedly indicated. In the small early lesion before the glands are affected, thorough scraping followed by cauterization with a good caustic paste will often suffice, but it is of vital importance to make sure that there are no involved glands. The X-ray is useful here also, but with this type nothing short of radical destruction can be considered ideal, and this is best accomplished with the knife. The writer is well aware that caustic pastes are used, but in his opinion it is not a safe method. The basal cell type or "rodent" nodule or ulcer calls usually for milder although thorough measures. There being no glandular complications the various caustic pastes are useful, but destruction is best accomplished by thorough preliminary use of the knife or curette. It is surprising how readily this type can be curetted and with what little pain. In the writer's experience this has proven the most useful method for this variety of epithelioma but it is of the greatest importance to make it thorough. A proper course of X-ray treatment after this will ensure the destruction of any remaining epitheliomatous cells. After the curetting pure chromic acid crystals can be applied to the surface so as to completely cover the same. The hemorrhage should first be reduced (pressure is usually effective). The chromic acid forms a black crust which can be allowed to remain until ready to come off. There is some reaction in the surrounding tissues following this, or any other caustic treatment, but it soon subsides. It is believed that this inflammatory reaction causes the destruction of any of the epithelioma cells that may remain after curettage. In the milder cases the pure trichloroacetic acid crystals may be applied. The arsenic paste as well as the various other caustic pastes prove very effective in the simpler cases, the arsenic particularly seeming to have a selective action. Many other methods of treatment including the use of radium, high frequency spark, cataphoresis, phototherapy, static electricity, liquid air and carbon dioxide snow will not be discussed here because it would prolong the paper unnecessarily. In fact the writer has merely given prominence to the various measures which in his experience and observation have proven most effective in the relief of these various conditions.

The purpose of this paper has been to emphasize the significance of various lesions in the senile skin and above all the utility of early, thorough treatment in preventing some of the ills of the period of senescence.

## SOME TYPES OF INTESTINAL INDIGESTION OCCURRING IN YOUNG CHILDREN.\*

By LANGLEY PORTER, M. D., San Francisco.

Any who have had experience in the examination of the stools of young children cannot fail to have been struck by the frequency with which free starch is found, nor can they have failed to notice that almost invariably the presence of this starch in the stools is accompanied by a very definite, although not uniform, series of clinical symptoms. It is also not infrequent to find stools which show with the starch an abundance of fat, free, or in the form of fatty acids, or as soaps. In infants who for the most part are fed dilutions of cow's milk, especially when these dilutions are high in fat, the presence of fat or its derivatives is extremely common; when in marked excess this is invariably a sign that the child is being damaged by its food. Among older children we are frequently confronted by a clinical picture of extreme indigestion with metabolic disturbance in which the only finding in the stools is a great waste of fat. We have then, from the point of view of stool examination, three definite types of intestinal indigestion occurring in children, the first in which the child shows partial or complete inability to digest starches properly, the second in which the child shows an inability to deal adequately with fats, and the third in which there is a deficiency of digestion both for fats and starches.

The question of starch indigestion is one that is very closely allied to other problems of intestinal digestion, especially those relating to the digestion of cellulose and sugar. The cases range from those of mild degree, in which the clinical picture is of a child who is not gaining weight as well as it should, who is restless at night, who is invariably plagued with attacks of urticaria, who has concentration of urine with enuresis, especially of the nocturnal type. These children have characteristic faces, so much so that when they enter the clinic, they are usually greeted with the exclamation, "A starch baby." The strong characteristic of this expression lies in the rather sunken eye with heavy dark circles beneath it. The skin, even when urticarial wheals are not present, gives evidences of urticarial irritation and very many of these cases show true dermatographia. This type is characterized simply by very slight macroscopic alteration of the stools; while the microscope for the most part, shows merely an abundance of loose starch granules and cellular waste after the stools have been treated with iodine.

History of P. B., aged 12. Boy has suffered ever since infancy from attacks of acute urticaria; these attacks have occurred two or three times a month; they are so severe that the boy does not sleep; he tears himself until the skin becomes excoriated and infected; he is unable to work in school and is altogether miserable; suffers from nocturnal enuresis; had been fed mostly on mush and carbohydrates; eats irregularly and eats between meals. Boy comes into office looking ill and shows evidences of having lost sleep; chest is normal; heart is normal; belly is protuberant; reflexes normal; blood, high eosinophilia; urine highly acid, specific gravity 10.30; stool contained a quantity of free starch and a great deal

of cellulose; all over his skin are large raised urticarial wheals and pigmented areas of old urticarial eruptions intermingled with scratch marks. Under treatment of daily borax bath; regular meals; limited starch in diet; boy returned six months later, his general appearance was markedly improved; he had had no return of urticaria.

There are, however, examples of extreme starch indigestion in which very little or no starch is split in the intestine and in which even dextrins are not tolerated. These children develop a clinical picture not unlike a long persisting bacterial infection of the bowel with alarming frequent, gluey, mucus containing brown, sour stools; vast loss of weight and extreme abdominal distention and are among the most distressing patients with which we have to deal.

Such is the case of A. S., who when 10 months of age underwent an attack of acute intestinal indigestion. Up to this age she had apparently been normal. With this attack she had high fever and as many as ten gluey stools each day. She was then being fed upon a mixture of oatmeal gruel and milk. Under the usual treatment for gastro-enteritis she made a recovery but never did well after that. A number of foods were given her all of which contained starch, and she progressively lost weight and strength. When 18 months of age she had a second, almost identical attack in which she rapidly failed. This attack was characterized by frequent stools which were made up of mucus and uncolored fecal masses which are often called curds. Her abdomen was markedly distended; she was very irritable. Her condition continued to get worse until a consultation was called and it was decided that the child had a chronic gastro-enteritis of bacterial origin, although no pathogenic bacteria were found in the stools. An unfavorable prognosis was given and an appendicostomy was advised. Child had been fed for several weeks merely on barley water because it was believed that she could not digest milk. Her temperature ranged from 100° to 103°; 5 to 15 stools in 24 hours that were made up of a gluey matter mixed with mucus, some pus, and in many of the stools there was a considerable amount of pinkish blood.

At this juncture she came under observation. Her history taken at that time states that she was an emaciated child of 20 months, weighing 12 lbs. 14 ozs., with a protuberant abdomen, so much so that on first view tubercular peritonitis was suggested; she showed the effects of lack of sleep and it was stated that she had not slept more than two hours continuously for two months except with the aid of opium. The child was suffering from scurvy, which may account for some of the blood in her stools. Her heart and lungs were normal; reflexes very brisk; no suggestion of any organic disturbance of the nerve centers; examination of the stool showed that the gluey constituent was undigested starch; Escherich's stain showed many gram positive cocci. It was decided that the child was suffering from a severe starch indigestion with scurvy. She was ordered a starch free diet after the manner of Herter, with large quantities of gelatin and fruit and vegetable juices and meat and eggs. With the exception of an occasional dose of castor oil, no medication was given and all starch was withheld from the diet for about a month. The little one improved and began to gain weight and sleep better. At the end of a month an attempt was made to add starch to the diet. Rice flour was chosen. Exhibition of this for four meals brought about an attack similar to those described. She was given castor oil and returned to a starch free diet. Two weeks later an attempt was made to add dextrins in the form of Mellin's Food or Malted Milk, and these created disturbance and had to be withdrawn. The same result followed an attempt to feed fine Italian gluten

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paste and zweiback. It was decided that the child had an absolute intolerance for starch. On a starch free diet she gained progressively and at the end of eight months of treatment her weight was 21 lbs. and she was rosy and looked healthy. The major part of the food taken was lactated milk. At this time the mother attempted to give starch in the form of zweiback and the child again had a characteristic attack with gluey stools. The child is now  $3\frac{1}{2}$  years of age, weighs 25 lbs., and is unable to take the least amount of starch. Half a piece of zweiback will produce within 24 hours an attack with the characteristic pathologic stools already described. Cellulose is tolerated and green vegetables put through a sieve are well digested.

Except for her ability to digest fat we feel that it is not unreasonable to classify this child as of the group described by Herter, one of the sub-acute disturbances that lead to intestinal infantilism. Undoubtedly, had a persistent attempt been made to feed starch to this child, she would either have died or have developed into the chronic type of intestinal infantilism of which Herter gave the following six signs as characteristic:

1. Arrest in the development of the body.
2. Abdominal distention.
3. Anemia.
4. Fatigue.
5. Disturbed intestinal function.
6. Development of the brain and mental power unimpaired.

He laid a great deal of stress on the alteration in the bacterial flora and on toxic products excreted in the urine. He looked upon the lack of growth as due to the damage wrought by these products as well as by the excretion of essential calcium and magnesium from the body combined with the wasted fats. It is his opinion that for the most part, cases of carbohydrate and fat indigestion were of the same clinical syndrome, but a limited experience would suggest that this is not always the case. In the instance of starch indigestion just quoted, the child was able to deal with a large quantity of fat while there are cases of fat indigestion, in which carbohydrates are dealt with perfectly, even where given in excess. Herter's experiences with both types are exceedingly well described and his book has made it comparatively easy for us to devise dietaries that would compensate the loss of fat in some cases and of starch in others.

While mild degrees of starch indigestion are very common, the case just described is the only instance of extreme starch indigestion that has come under my notice. However, one frequently encounters children in whom fat intolerance is exceedingly well marked. We believe the particular type of fat intolerance which leads to metabolic disturbance, arises only too often from ill-advised formulæ given in the first year of life. There is no doubt whatever that formulæ calling for excessive quantities of fat, if persisted in, may engender an intestinal condition leading up to fat intolerance with metabolic disturbance in which both skeletal and muscular wasting may be marked. A condition which, from a different point of view than Herter, has been described by Finkelstein as decomposition. A very excellent example of his stage of decomposition which seems to correspond to what Herter

classes as "One of the subacute disturbances that lead to infantilism," is the following case:

A child seen for the first time in his twenty-first month; weight 14 lbs.; his birth weight was 6 $\frac{3}{4}$  lbs. He was suffering from a typical scurvy with spongy gums. He was being fed on condensed milk and at this time was being treated as a case of chronic recurrent vomiting. He was nursed until the end of the fourth month. During the first three months gained a half pound a week, then from the age of four months to nine months gained very little and at the age of nine months came to a weight standstill, but seemed contented and happy until he was suddenly attacked with periodical recurrent vomiting and marked diminution of urine. He was seen by a pediatricist, who diagnosed early rickets, and who prescribed a mixture of equal parts of oatmeal gruel and top milk; this mixture apparently contained about 5 $\frac{1}{2}$ % of fat. On this food child improved for four months. He then developed a picture of alimentary intoxication and was seen by a physician and put upon a milk diet; child improved and gained a few ounces a week. At the age of sixteen months was beginning to stand and was gaining strength. At nineteen months he had a recurrence of his attack. On first examining him he was found to be suffering from marked scurvy with great emaciation; belly was very protuberant. On my second visit I saw him eject a quart of bile-stained, rank-odored fluid which was mixed with viscid mucus; at this time he was passing small amounts of highly concentrated urine, and daily one or two very scanty foul stools. Examination of blood showed no leukocytosis, hemoglobin 95%, lymphocytes 36%, large mononuclear 16%, no nucleated cells, definite poikilocytosis and anisocytosis.

The child was put on a diet of green vegetables with broth and beef juice, a small amount of divided rare meat which was well digested. Great difficulty was experienced in feeding him because he refused milk, but by coaxing we were able to get him to take considerable amounts of food. On April 29, 1910, stool report was as follows: Very foul, no starch reaction to iodine, no muscle fiber, numerous vegetable cells, excess of free fat and fatty acid. The urine at this time showed a very heavy reaction of indican. The circulation was well maintained. There was no enlargement of the heart. His lungs seemed to be normal. There was no area of impaired resonance and no rales to be heard anywhere. Special attention was paid to percussion over the spines, and dullness did not pass lower than the lower border of the third dorsal. It was feared that there might be some glandular tuberculosis. The spleen was not palpable. Liver border two fingers breadth below costal margin. Lower abdomen curiously narrow as compared with the upper abdomen, recalling proportions of a child suffering from pyloric stenosis. Attempts at stomach analysis not satisfactory. On the mixed diet the child improved steadily and there was no further vomiting, for about a month, when he was attacked with whooping cough, through which he passed uneventfully and recovered without complication. After this he gained in weight and at his highest weighed eighteen and a half pounds. Within the last month there has been a great deal of irritation of the gums due to eruption of molars, in this time he has lost one and one-half pounds and has had occasional attacks of vomiting, but these were solitary attacks in which food alone was rejected. At no time has there been any deficiency in the apparent digestion of starch or proteid, but fats seem to be not at all digested. All of the bowel movements show a great excess of free fat and fatty acids. The urine has never shown a specific gravity of more than 10.18; there has never been albumin or sugar present, although the indican reaction was at one time very heavy. The stool has been searched and no tubercle bacilli found. Careful

percussion was made of the right iliac fossa and a very thorough abdominal examination was done which failed to reveal any symptoms that point either to chronic appendicitis or tuberculous involvement of the retro-peritoneal glands. During the last month the child has been taking a quantity of food which approximately represents nine hundred calories per day. His tastes are extremely capricious and it is most difficult to get him to take food. There is no question but that the exhibition of cream aggravates the child's symptoms and increases the waste in the stool. The child has been getting a good deal of fluid and all of the symptoms of scurvy have cleared up. The strength of the child and his spirits are fairly maintained. My anxieties are with regard to his loss of weight and the onset of possible metabolic toxemia. On two occasions we found a very marked color reaction in the child's urine. In response to Fehling's test there was definite change, not immediately on boiling but after standing some minutes change in color from blue to yellow but there was no true precipitation.

Since writing the above the child has had a very severe recurrence which has, however, yielded to the exhibition of emulsion of raw sheep's pancreas, as suggested by Janeway. Under this treatment the symptoms remain in abeyance and the child is gaining rapidly in strength and weight.

A child's inability adequately to deal with starch is frequently quantitative and due to its excess in the diet or to the presentation of starchy articles in such a form that the child is not encouraged to masticate its food thoroughly; such, for the most part, can be remedied by providing not a small amount of starch but starch in such forms as hard toast, well-baked crackers and some of the more recently introduced cereals which demand chewing. Histories of such cases are so common as to render it unnecessary to detail any here. Improvement can be furthered by limiting the quantity of sugar given and forbidding piecing between meals. It is also well to prescribe some mild and pleasant form of iron to meet the anemia which is always present in greater or less degree. One of the best forms of iron is the saccharated carbonate, and with this we usually combine the old-fashioned gray powder in order to insure evacuations of the bowels.

The successful dietetic treatment of these cases depends upon first determining which of the food elements the child is not digesting well and finding to what degree the digestion is deficient. In severe cases where it is necessary entirely to withhold starch or fat as the case may be, the physician must devise a dietary that will supply sufficient calories to maintain the child's nutrition and energies. In cases where fat and starch digestion are both impaired, it is a task of extreme difficulty, but in our case we have found that sugar was well tolerated and this has not been so great a task as it apparently sometimes is. It is probable that climatic conditions may have something to do with this. Finklestein has shown that the intolerance of such children to food, sugar especially, has been markedly increased when the external temperature is excessive.

We have had great success from following Herter's advice and feeding gelatin in quantity; it can be disguised in so many ways, as soups, in puddings, in milk, in the form of gelatin candies, that one is able to give more than Herter thought

feasible. Doubtless in both the cases of A. S. and A. H. the return to normal and their salvation depended upon the large amount of gelatin they were able to take.

This inadequate paper is written merely to call attention to the necessity for a routine examination of the stools, especially of children who have passed their first year, for while we believe that the examination of the stool of the infant gives information of much value, we are convinced that it is impossible to do full justice to sick children in their early childhood without routine examination of the stools.

The methods themselves are simple and are at the command of any one in practice.

It is unnecessary to detail the information that can be derived from a naked eye examination of the stools, except to call attention to the fact that the presence of mucus in many instances, when unaccompanied by fever or toxic symptoms means that the infant is receiving insufficient food.

Our microscopic examination has consisted of making three smears of a small amount of the stool on ordinary glass slides. The first smear is stained with saturated alcoholic solution Sudan 111. This stains neutral fat and sometimes fatty acids. Soaps are unstained. The second smear is warmed with a few drops of glacial acetic acid which is then again stained with Sudan 111. The third smear is only stained when starch is being given and is dyed with Lugol's solution, which turns starch blue.

Some time ago Fritz Talbot of Boston suggested the use of carbol-fuchsin, which stains fatty acids bright red. Soaps turn red. Neutral fat is unstained. We have adopted this as a routine. It is possible in this way, by comparison of the Sudan and the carbo-fuchsin slides, to estimate the total fat and the relative amounts of soap, fatty acids, and free fat present. In his paper on "The Physiology and Pathology of the Digestion of Fat in Infancy," Talbot gives the following table of deductions that may be drawn from these staining methods.

1. Entire Digestion of Fat.—Microscope, No. 7 objective, No. 3 eyepiece. Stain; alcoholic Sudan 111. No fat in freshly stained specimen. One to three drops in field after acetic acid and heat.
2. Normal Digestion.—No fat or five to eight neutral fat-drops in the *entire cover glass* in freshly stained specimen. Five to eight drops in a field after addition of acetic acid and heat. No change in amount of fecal residue.
3. Slight Excess of Fat.—No fat or two to four neutral fat drops in a *field*. Eight to a dozen drops in a field after acetic acid and heat. No change in amount of fecal matter.
4. Moderate Excess of Fat.—No fat or six to eight neutral fat drops in a field. More than twelve large drops after addition of acetic acid and heat. Considerable fecal material remains unchanged.
5. Large Excess of Fat.—No fat or many fat drops in a field. Practically the whole slide turns into fat drops after acetic acid and heat, leaving very little fecal matter unchanged.

The only point in which Talbot's procedure



differs from ours is that he adds his acetic acid to the already stained Sudan, but the deductions drawn are equally valid. It is to be remembered that from 6 to 10 per cent. of the fat given in milk mixtures will be wasted in the stools of normal babies and that when no free fat or fatty acids appear, it is permissible to increase the fat in the food. The appearance of slight or moderate wasting of fat is not an indication for an immediate change of food, but for a careful watching of the baby and of its stools. When a great deal of free fat or fatty acids appear the indication is to decrease the amount of fat ingested. The presence of large quantities of insoluble soaps indicate that either dextrins or starches should be given according to the age of the child.

In conclusion, we feel that the routine examination of the stool gives information of so much value that it is no more to be neglected in the conduct of cases of indigestion occurring in infants and children than are urine examinations in the routine of medical practice.

### THE TREATMENT OF TIC IN CHILDHOOD.\*

By E. C. FLEISCHNER, M. D., San Francisco, from the Department of Children's Diseases, Cooper Medical College, San Francisco, Cal.

In this modern era of civilization when intensity rather than moderation characterizes the method whereby we lead our daily lives, even the infant is caught in the vortex of excitement and competition, and the result is a nervous system ruined in its developmental period, producing the neurotic child so commonly seen among all classes of humanity.

Whether it is the overzealous mother, anxious to see her offspring excel in those qualities which make her children the envy of her neighbor, whether it is the overindulgent father, who at the end of a day's work reaches home and expects his child, at an hour when fatigue calls for rest, to dine with him and entertain him, or whether it is the exacting pedagogue who, well trained in the art of teaching, is unfortunately only too often ignorant of the first principles of physiology upon which all teaching should be based, the effect is always the same. The fatigued mind is stimulated at a time when it should be rested. Instead of living normally, from infancy on, the modern child is forced, when physical ability fails, to goad himself on by bringing into play that indefinite entity which we call nervous energy. When called to account, the mother's reply always is, "Other children do it; why can't mine?" The father says, "If I cannot have a little pleasure out of my children at night when I get home, what is the use of having them." Arguments offered against such statements are forceful enough, but they are ranked among those unpleasant truths that humans

never care to hear, and they serve to point out once more how, after all, even in paternal and maternal affection, innocent selfishness plays sufficient a part to produce a baneful effect upon the offspring. Call it what one will, love, affection, pride, that intangible something which causes every mother to urge her child along with the desire deep down in her heart to have him excel, to have him outrank the children with whom he comes in contact, is productive of more harm than good, and the unfortunate element of it all is, that the effects produced upon the immature brain cells are insidious, and only when symptoms show, and the harm is already done, can the young organism be relieved from that which it should never have suffered.

The question of individuality, which from birth to maturity should be carefully studied by all of those coming in contact with children, is constantly being lost sight of, first by the mother, who judges the ability of her second child by that of her first, then by the grandmother, who expects from her grandchildren all that she expected from her children, notwithstanding that they are living in an age when environment is so different, then by the teacher, who expects every child to meet what she has been taught to be an average, the individual is constantly being pitifully neglected, and the result is the nervous child which we meet only too frequently to-day.

Medical men are constantly being requested to discuss, usually with lay audiences, the so-called "Medical Aspect of the Twentieth Century Child." Were the subject in many of its phases not so sad, it would be truly amusing, because it represents an effort on the part of parents to ascribe to their children abnormalities supposedly inherent in the infant, and yet in 90 per cent. of the cases in which the twentieth century is responsible for unusual states of childhood, it is only made so by those ill-balanced qualities which the end of the last and the first of this century have imposed upon non-realizing adults.

It may seem strange, in a paper that has to deal ostensibly with a therapeutic problem, that so much has been said on the general tendency toward nervousness in childhood, but the treatment of tic is so definitely and intimately connected with the etiology and symptomology of the condition, and its prevention is so inherently a part of the prophylaxis of all pediatric nervous states, that a paper on the subject would be scarcely comprehensive, did it not deal with all of these elements in considerable detail.

Of all the nervous patients with which medical men have to deal none is probably more pathetic

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than the unfortunate child, the victim of tic. In the first place he is usually very much neglected by his parents until the condition has been profoundly established, on the assumption that he is a little nervous, and that it will soon pass away. Then when it is finally realized that the child is afflicted with a condition which, instead of getting better, is growing worse, it is ascribed to a bad habit, and as such he is expected to stop it by force of his own will. This not being accomplished, the now over-anxious parent resorts to punishment and the poor victim suffers for what he is not to blame. He comes in contact with his schoolmates and playmates, and ridicule takes the place of punishment and his lot is not a great deal happier. In school he is again severely reprimanded, and once more the nervous instability is aggravated.

Then at last he comes in contact with the doctor. In only too many cases his condition is diagnosed "Chorea" and treated as such, with results worse than no treatment, or he is unfortunate enough to come in contact with the therapeutic nihilist who says, "Oh, he will get well. Leave him alone." Or even more disastrously, he meets with the doctor who fails to realize that the condition is merely a symptom, brought on by environment and over-stimulation in a child, where a neurotic tendency produces these very marked symptoms.

And his tic drags on and on, and some get well by grace of good fortune, but more become the victims of chronic tic, that it is our unhappy lot to see every day. And a few under the surroundings which have produced tic acquire on their unstable nervous systems more serious conditions and become wrecks from which there can be no recovery.

A rational system of therapy for any disease must consist in an accurate interpretation of the deranged physiology involved in the process, and a correction of the same by means of medical, mechanical, educational, dietetic or suggestive methods. If this assertion is accepted as correct, then the treatment of tic must consist first, in the recognition of the etiological factors to be removed, and secondly, in a knowledge of the pathological state to be corrected.

Tic has been defined by McCarthy in Osler's system as a sudden, quick, involuntary, co-ordinated muscular action, usually of purposive type and partly or entirely under the control of the will.

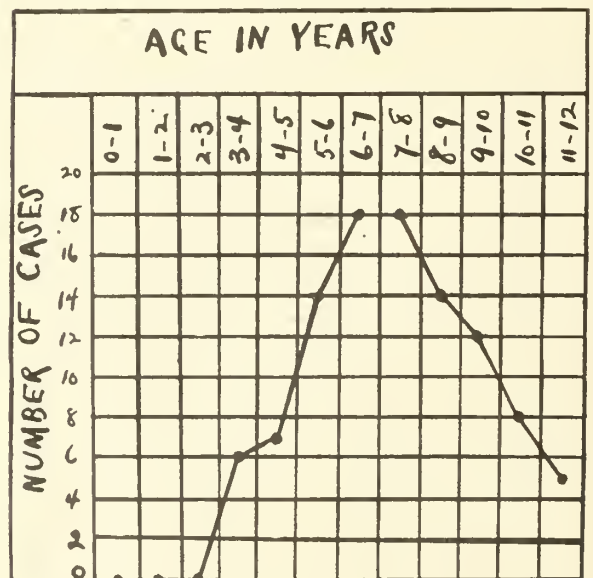
In an analysis of 100 cases in 1905, Still of London found that the most frequent form of tic was eye blinking, this being present in 47 per cent. of the cases. Tics of the various facial muscles are the next most frequent. Another common form is the affirmative nod of the head.

The upper extremities, the most common tic of which is an elevation of the shoulders, are involved in 22 per cent. of all cases, and the lower extremities in 9 per cent. of the cases.

In intensity, and upon this point especial emphasis should be laid, tics may vary from a single blinking of the eyes, i. e., an involvement of one group of muscles up to the so-called psychical form of tic or Tourette's disease, in which there are rapid, forcible, arrhythmic and involuntary contractions of various groups of muscles, (2) explosive utterances, articulate and inarticulate, (3) use of bad language, coprolalia, (4) repetition of words and phrases, echolalia, in which type of the disease the prognosis is definitely bad.

Notwithstanding the fact that the convulsive movements of tic are such as might be made for a definite purpose, and that they are commonly started by some irritation that has caused the movement to be frequently repeated, nevertheless we must realize that every child with a follicular conjunctivitis does not develop a tic of the eyelids and that the condition only occurs in those patients where there is a definite, underlying nervous instability. The disease is found with about the same frequency in both sexes.

Concerning the relation which age bears upon the frequency of tic, the accompanying chart pre-



pared by Still out of his compilation of cases discloses some very interesting features. It shows that the disease increases most rapidly in frequency between the ages of four and seven years, from which time it again gradually diminishes. Still states that the age incidence suggests second dentition as a reflex cause. How infinitely human to ascribe to nature that for which man is definitely responsible! A glance at the chart will show that the age incidence of tic corresponds absolutely with that period of life when children are first sent to school. It illustrates in a most striking manner the importance of sparing the young minds and bodies at a time in their development when overstimulation provokes an enormous amount of harm.



This opens up an enormous question upon which, sad to relate, medical men have not as yet taken a definite stand, the age at which it is desirable to begin sending a child to school. Here again the question of individuality plays a very important part, but one thing is certain, that the common practice of sending four, five and six-year-old children to school in order that those at home may be spared the trouble of caring for them, is a malicious practice and should be condemned as such. Every doctor should make it his duty to impress this fact upon his patients and there would be less tic, stuttering and nervousness in children. Every medical society in the country should go on record as advocating seven years as the earliest age at which a child can be sent to school, and legislation along this line should be put into immediate practice in order to prevent the destruction of many young nervous systems.

Several years ago a meeting was held of the Academy of Medicine in New York to discuss from a medical standpoint the crowded and unsanitary condition of the New York schools. Dr. Maxwell, the superintendent of schools, was invited to address the meeting and in a very excellent manner called attention to the fact that conditions could not be improved as long as it was necessary to accommodate more pupils in the schools than they were supposed to seat. In the discussion that followed, Dr. Jacobi in the masterful and dignified manner that has characterized everything that the Nestor of American pediatrics has taught during the past fifty years, said, "I can tell you a single method whereby the congested condition of the schools can be corrected. Remove from the school-room the fifty thousand children between the ages of four and seven, and you will not only improve school conditions, but you will spare young minds that are suffering irreparable harm, and you will make better men and women out of infants whose minds can only be blighted by premature stimulation."

Before entering into the intimate details of the treatment of tic, something must be said upon the differential diagnosis because probably more cases are maltreated on account of being mistaken for chorea than for any other reason. The chief differential points are given by H. T. Patrick as follows: (1) The movements of chorea are involuntary and not amenable to control. Those of tic are always volitional even if not voluntary. (2) In chorea the movements are incoordinate and purposeless; pathologic in the association and sequence of muscular contraction; grotesque because of incoherence and disorder. In tic the movements are coordinate and purposive; physiologic in the association and sequence of muscular contraction. They are grotesque only because malapropos. (3) Choreic movement has no analogy in normal functions. Movements of tic are like those which are normally made. In tic the same movement is repeated over and over. (4) When choreic movements grow worse they do so without relation to anatomic or physiologic groups, except that in the beginning and in mild cases one may have a hemichorea. Tic extends in one of two ways, ordinarily by involving

adjacent and functionally related groups, as nose to lips and adjoining facial muscles, or tic may become worse by a new irritation in some other part of the body, causing a new tic in a susceptible person. (5) Chorea is disabling, tic is not. (6) Choreic movements are uncontrollable, and distressing; tic is attended with gratification and relief. (7) Choreic movements are aggravated by an effort to control them. The movements of tic cease or are ameliorated by the will.

For the actual treatment of tic the medical profession owes a lasting debt of gratitude to the French school under Brissaud, for the methods that we now employ. Most of the actual work on the subject was done by Meige, one of Brissaud's assistants.

Considering the material upon which the conclusions reached in this paper are based, one would be scarcely justified in excessive optimism were it not for the fact that the cures were all obtained in about three and a half months from the time that treatment was started.

The patients were all children between the ages of six and ten and a brief résumé will be given here of their histories.

They were all treated in the Children's Clinic of the Cooper Medical College in the service of Dr. Langley Porter.

J. N., boy, age 6 years. Family history: negative; previous history: no bearing; child had never had convulsions; about a year before being seen shortly after starting to school, patient began to have twitching movements of his neck and shoulders and shortly after this he began blinking his eyes. The condition had been treated under numerous diagnoses by various methods without result. The boy was put under treatment and in  $3\frac{1}{2}$  months he was completely free of his tic.

M. L., girl, age 10, was brought into the clinic on account of twitching and blinking of the eyes and shaking the head from side to side. Family history was quite negative; previous history was also negative except that at the age of 2 years she had several convulsions; this is important as an evidence of what many German and French neurologists claim, that convulsions in infancy are forerunners of nervous instability in later childhood. Her tic entirely subsided in 3 months.

N. L., boy, age 8, was brought into the clinic on account of eye blinking and what mother described as frequent elevations of both shoulders. Family history negative; previous history had no bearing on the case. The movements subsided in three months. In connection with this case a very interesting fact may be reported. For three months after his tic had ceased patient was in very good condition and had no return of the movements. At the end of that time, however, the boy's mother was taken ill and he was placed in an Orphan Home. Three months later, when removed from the home, he was found to again have slight blinking of the eyes. He has since been under treatment and again his symptoms have markedly ameliorated. This case illustrates very well the importance of recognizing the nervous instability of such children, of persisting in treatment despite the fact that the symptoms have disappeared and of keeping them in environments where there is not apt to be any abnormal irritation of their nervous system.

There were two other children whose histories were similar and for brevity they will not be given.

The details of the treatment are as follows: (1) A very complete physical examination is made to be

certain that the patient is not suffering from some irritation, such as follicular conjunctivitis, errors of refraction, polyps in the nose, adenoids, tight clothing, which may have been responsible, not for the tic, but for the original voluntary motion that preceded the tic and of which the tic movement is a repetition. (2) The patient is immediately taken out of school, if possible is sent to the country. (3) He is put upon an easily assimilated diet, forcing the milk and eggs. (4) He is made to rest one half hour before his meals and one half hour after his meals. (5) The children are given very light evening meals and are put to bed within two hours of that time depending upon their age. (6) Small doses of sodium or stantium bromide are given for two weeks. (7) Educational treatment. Under this heading are included those methods which enable the patient by training to control his involuntary partially or wholly subconscious movements. The method employed in the cases treated depends upon the fact that the tic movements can be stopped by an effort of the will for a longer or shorter period of time by all patients. In other words, it depends upon concentration and is carried on as follows: the finger is raised and the patient requested to concentrate his attention upon it for 10 seconds without moving a muscle. This is readily done. He is then directed to do the same thing at home 3 or 4 times a day standing in front of a mirror. This time is lengthened each day and the frequency increased until the patient is going through this concentration treatment 6 or 8 times a day for 150 to 200 seconds at a time. The effect of the treatment is obvious, the patient controls his tic by force of will.

When this treatment was started it was intended to augment it by the so-called method of conscious repetition which has given some men excellent results. In this method, the patient is compelled to stand in front of a mirror and every time that he has a tic movement he must repeat it voluntarily 5 or 6 times. Here he eventually converts his subconscious involuntary movement into a voluntary conscious one. It was not found necessary to use this. The concentration method has one very decided advantage over the conscious repetition method in the cure of tic in children, in that it is much easier to get them to try and stop what they know to be wrong than it is to have them repeat what they already know to be a disease.

It is decidedly advantageous when possible to see the patient every day for the effect which a careful supervision of the therapy will have. Persistence, however, will be rewarded and the extra effort is well worth while. No case can be more satisfactory than one in which the doctor has removed the etiologic factor, improved the environment and cured the pathologic process simply by education.

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#### Discussion.

Dr. G. V. Hamilton, Santa Barbara: Dr. Fleischer has omitted a most important feature of this disorder: mere nervousness is not in itself sufficient to cause a child to blink his eyes, jerk his head, snap his fingers, etc., habitually. The factors that are responsible for nervousness in general may be looked upon, of course, as predisposing causes of tic, but the rise of this symptom is always to be attributed to a concrete experience to which it is definitely relevant. An example will make this a little clearer to you. A seven-year-old boy was brought to me with a throat tic. He was a nervous, unstable, improperly trained child—one in whom we might expect to find such disorders as the tic. When the child was induced to talk it was found that he had disrobed a little girl in a bath room and had attempted sexual intercourse with her. Whenever he thought of this occurrence he gave a little moan of distress which finally resolved itself into the throat tic. It disappeared when he had squared himself with his priest by confessing his misconduct. This case is typical; the tic begins as a reaction to a situation to which we cannot make a definite and satisfactory mental adjustment, and, according to psychological mechanisms now so well described by Freud, persists automatically. Our own tics—our baffled shrugs and other gestures of the kind—should enable us to understand the child's tic.

Dr. H. D'Arcy Power, San Francisco: Fundamentally the basic cause of all tics seems to be a defective cerebral inhibition, often associated with too active ideation. That such conditions should particularly supervene between the fifth and seventh year is not surprising, it is a period of active growth in the prefrontal areas, when perverted channels of nerve action are easily established and made permanent. It is to be noted that when tics occur among adults it is always among neurotics. All this adds strength to the logic of Dr. Fleischer's line of treatment. It educates the power to inhibit.

Dr. A. W. Hoisholt, Stockton: Dr. Fleischer has very properly dealt with the educational treatment of the child in this condition and the relationship of the etiologic factor to the treatment. He also spoke of the fact that the affection of the parent is oftentimes selfishness and the more affection the more selfishness there is. The education of the child should begin with the education of the parent and the parent should begin to educate the child when he or she first notices the condition.

Dr. E. C. Fleischner, San Francisco: I appreciate very much the discussion which has taken place on this paper. My object in presenting it to the Society was simply because I felt that I was in a position to suggest an accurate method of treating a nervous disease, the treatment of which as a rule is far from gratifying. I think the point made by Dr. Hamilton regarding the elementary psychological analysis in these cases is exceedingly interesting and I am glad he called attention to the fact. The results in this rather small series of cases have been very striking. The mothers have been skeptical in every case and yet following the treatment the severe tic movements have disappeared within a short period of time.



SOME OBSERVATIONS RELATING TO  
THE PROPHYLAXIS OF ARTHRITIS.\*

By C. C. CRANE, M. D., San Francisco.

If we pause to consider what disease produces the greatest amount of suffering, long-continued disability and ultimate invalidism, doubtless we would agree that arthritis, in some form or other, is preeminently entitled to the place of distinction. Arthritis is such a prevalent malady that rarely do we find a home in which it has not been a most unwelcome visitor. From casual inquiry it is unusual to find an individual who has not, at some time or other, been the victim of such a disease.

A large percentage of the hospitals' clinic is composed of men, women and children who are incapacitated by this same disease. A large number of the indigent of the almshouse are they who have been reduced from lives of useful service to a disagreeable existence by some form of arthritis.

Therefore, it seems pertinent to examine into this widespread condition of suffering and maiming in order to ascertain if anything more rational, or more humane, or, indeed, more economic, may be done than has been done for the relief, or better still, for the prevention, of such affliction.

Perhaps the saddest phase of the whole matter is the attitude, almost akin to apathy, which has pervaded humanity, as a whole, toward these unfortunates. The victims of arthritis, especially those afflicted with that particular type of arthritis which is of gradual onset but persistent activity; such victims have been pitied much and relieved but little; for a very long time they have been regarded as a sort of "necessary evil."

If the recent advances in physiologic and in pathologic chemistry are reliable we may feel sure that most of the cases of arthritis are inexcusable and that the occurrence of them offers a very serious reflection upon that which we take no little pride in denominating "Our Twentieth Century Enlightenment."

Arthritis may be considered, broadly, from two aspects; Relief and Prevention. If a consideration of the former represents a more humane interest it may be safely said that a consideration of the latter represents an interest not the less rational.

With regard to relief, one item may be mentioned which is most salutary; it is the movement which is being urged in many parts of the country for the erection of hospitals for the care of the victims of arthritis. The fact that such an effort is being made might, upon first thought, be interpreted as an acknowledgment of a condition which is recognized as being permanent and unavoidable, but let us not be led, thereby, into a deeper apathy, but rather let us consider that such an effort is primarily intended for the *care*, rather than the *cure*, of that large number of victims of arthritis whose condition of crippling has progressively advanced to such an extent that it is regarded as incurable.

Although much time is being given to the *treatment* of disease, in general, still that boon of mankind, preventive medicine, is gradually disseminating light where before there was darkness, and it is

from the standpoint of prophylaxis that the following observations are offered.

For some time past some of our ablest investigators have concerned themselves in an attempt to discover the relation between disease-foci of the mucous membranes and arthritis. Because their results have been, for the greater part, negative, they do not lessen the value of the work they have done, nor do they prove that such a relation does not exist. In spite of their failure to establish such a relation beyond peradventure there is an abundance of evidence pointing to a very direct relation between diseased mucous membranes and diseased joints. The fact that such evidence is *mainly* clinical and almost *entirely* circumstantial need not minimize the importance of the same in the consideration of the prophylaxis of arthritis.

Perhaps the purpose of this paper may be best served by a consideration of some of the more common diseases of the three main mucous-tracts: the naso-pharyngeal, the gastro-intestinal and the genito-urinary, which may be followed by arthritis.

Among the diseases which may invade the naso-pharyngeal mucosa may be mentioned influenza, tonsillitis, scarlatina and diphtheria.

Among those of the genito-urinary tract may be mentioned syphilis and gonorrhea and among those of the gastro-intestinal mucosa may be mentioned typhoid fever, amebic dysentery and intestinal indigestion. The diseases enumerated by no means includes all that may be followed by joint complications but rather the ones that are most commonly dealt with which are *often* followed by joint involvement.

Some of the observations which are submitted to substantiate the relation which is assumed to exist between diseases of the mucous membranes and arthritis are as follows: (1) At the Orthopedic Clinic of the Massachusetts General Hospital one hundred cases of arthritis, excluding tuberculous arthritis, were investigated by the author and approximately 90% of them gave a history of past or present disease of one of the three main mucous-lined tracts. This is not mentioned with the idea that such a history proves that in all of this 90% a diseased mucous membrane was responsible for the joint-disease; nor is it assumed that because in the remaining 10% no such history could be obtained that, therefore, a diseased mucous membrane was not responsible for the arthritis which existed.

(2) Doctor Long of the U. S. Marine Hospital Service, lately stationed at San Francisco, while making observations upon amebiasis, found that in virtually *all* of the cases of amebic dysentery which he studied there was an accompanying arthritis. He also found that the arthritis cleared up under treatment solely directed toward the pathologic condition existing in the intestines.

(3) Doctor Goldthwait has given the author permission to report a case of his in whom there was an arthritis of the cervical spine which was accompanied by an obstinate psoriasis which latter had persisted in spite of careful treatment. Both conditions, the arthritis and the psoriasis, cleared up after evacuating the antrum of Highmore, which

\*Read at a Meeting of the San Francisco County Medical Society, March, 1910.

was filled with pus, from which was obtained a pure culture of the influenza bacillus.

In this case it is presumed that the original focus of disease occurred in the nasal fossae and that the involvement of the antrum of Highmore was a result of such disease.

(4) Time after time a child or young adolescent has been seen who has had repeated attacks of "rheumatism" and so-called "growing pains."

Upon inquiry it was found that such attacks were, in a large proportion of cases, either accompanied or preceded by sore throats and tonsillitis and that the "rheumatism" and "growing pains" ceased after extirpation of the tonsils.

(5) Closely allied, perhaps, to the relation of diseased tonsils to diseased joints is the condition known as Still's disease in which the polyarthritis seems to be very markedly influenced if not entirely dependent upon the pathologic changes occurring in the tonsils.

(6) The development of an arthritis, the so-called "gonorrheal rheumatism," following an attack of gonorrheal urethritis, which has been lighted up by a subsequent attack of gonorrheal urethritis, has been frequently observed.

(7) Another instance that may be mentioned as being relevant is the development of a Charcot's joint as a late manifestation of a lesion which occurred, in a considerable number of such cases, upon a mucous membrane.

(8) Finally, a case of considerable interest occurred in the author's private practice. The patient was a man of 52 years of age who had been, for many years, a great sufferer from exacerbations of polyarthritis.

From this man no history of past or present disease of any mucous membrane could be obtained. The usual remedies had been tried in his case with no material relief. When seen for the first time the patient was suffering from one of these acute exacerbations. His various remedies were abandoned and his food for the following six weeks consisted of buttermilk, sour milk and sour milk curds, the latter being rendered quite palatable by the application to them of milk sugar. Under this treatment the joint disturbances ceased. The patient was then allowed to go back to his usual diet which contained an abundance of meat and shortly after was seized with another attack of polyarthritis. Again the buttermilk and sour milk diet was enjoined and again the joint disturbances ceased. Such a phenomenon is by no means extraordinary.

What, then, is the practical application of the evidence submitted?

Simply this: to direct your attention to the fact that when you are dealing with diseases of the mucous membranes you are dealing, also, with the possibility of joint diseases, with all the crippling and invalidism which joint diseases may produce.

Treatment: It is not the intention of the author to prescribe any particular form of treatment in the various diseases referred to which attack the mucous membranes, but rather to emphasize the importance of that sort of treatment which will most effectively cleanse the mucous membranes, when so diseased,

by removing the toxic products which are produced by such disease.

The surgeon has found it to be a good rule to remove pus and diseased debris from a wound at frequent intervals and it seems not only rational, but also *imperative*, that the medical man should apply this rule in all diseased conditions of the mucous membranes if the patient is to receive the greatest amount of benefit both from a therapeutic as well as from a prophylactic standpoint.

As there are no means of predicting, with accuracy, in a given case of disease of the mucous membrane as to the development of arthritis, it behooves the attending physician to take great care even in the simplest and most common diseases of the mucous membranes in order that joint-complications may be avoided.

A striking instance which bears upon this phase of the subject occurred, not long ago, in the practice of one of the most distinguished of modern medical men. A patient, with a "cold in the head," consulted this man of medical prominence and asked: "What shall I take for a cold in the head?" The answer was: "Take three days." The patient died from pneumonia within seventy-two hours!

Such a disaster is not unique. Neglected colds are prolific sources of pneumonia, pulmonary tuberculosis and arthritis.

In cases of rhinitis it is hardly sufficient to give the patient a few grains of quinin and a hot drink if the most effective service is to be rendered. Many of these cases of rhinitis are produced by the bacillus of influenza; a bacillus which is notoriously versatile.

The nasal chambers of a person afflicted with such a common malady are teeming with millions of these bacilli whose career might be cut short if they were removed from the nasal mucosa by gentle and frequent irrigations with unirritating saline, or mild alkaline solutions, and such a procedure would obviously be of real prophylactic value not only to the one afflicted but also to those with whom such a patient may come in contact. Such a remedy is usually quite comforting to the patient.

Although scarlet fever is a self-limited disease, and even though diphtheria has been shorn of its horror by the use of antitoxin, still the throats of the victims of these diseases harbor various organisms which the patient could do better without and the use of boracic acid solutions, either as a gargle or for irrigating the inflamed mucous membranes, while productive of no harm, might be of much benefit, as in so doing the patient is rendered more comfortable, less menacing to his attendants and at the same time his joints are being safeguarded to a greater or less extent.

Tonsillitis needs especial attention because in children it is so frequently accompanied or followed by joint complications, a fact that must have been frequently observed by all of you.

Whether or not the time will come when healthy tonsils will be removed, as a routine practice, as has been seriously contemplated in regard to the vermiform appendix, because of what may happen when these organs, which are so apt to become, do become, diseased, is a mooted question; but what-



ever may be offered in defense of retaining healthy tonsils does not apply to them, if, during childhood and early adolescence they are involved in repeated attacks of inflammation.

One thing is certain, and that is, that the possession of tonsils which are prone to recurrent inflammatory changes from slight provocation is, by far, attended with much more risk than the non-possession, and, therefore, such tonsils should be removed and a beneficent service rendered to the patient thereby.

With regard to the two common diseases of the genito-urinary tract, gonorrhea and syphilis. Only a word is necessary to emphasize the importance of ridding this tract of the gonococci once they have gained an entrance, as gonorrheal arthritis is too common a sequel of gonorrheal urethritis to admit of any doubt as to the cause-and-effect relation that exists between the disease of the mucous membrane of the urethra and the subsequent arthritis.

As to syphilis it seems to be beyond question that the late manifestations of the disease could be avoided if patients afflicted with this disease could be impressed with the mutilating consequences which are incident to neglected treatment by the ordinarily prescribed and dependable methods. The moral is apparent.

With regard to the treatment of the gastro-intestinal conditions, the proposition presents various difficulties. In the first place there may be no history of pathologic changes taking place in the intestines, and this fact accounts for many cases being overlooked. On the other hand, if there is a history of intestinal indigestion it may require patient investigation for a considerable time to establish the cause.

Then, too, intestinal indigestion is often a very complex process and it is difficult to determine, with precision, in a given case, what product, normally present, is increased or diminished in amount to such an extent as to be considered abnormal.

Presuming that the intestinal indigestion is due to the ameba coli, and such cases are not at all rare in San Francisco, the treatment and the cure of such a case depends, so we are told, upon high enemas of weak solutions of quinin; surely it is not difficult to understand why such a condition is not relieved by the treatment ordinarily prescribed for intestinal indigestion. Again, suppose we are dealing with a case of intestinal indigestion in which the chief difficulty is the inability to digest proteids, and in a large percentage of cases this is the main, if not the only, difficulty; how much permanent relief may be expected in such a case provided that proteids, in general, and meats in particular, are still allowed to constitute a prominent part of the patient's diet?

Other examples might be mentioned which, together with the ones discussed, point unmistakably to one conclusion; the conclusion that the treatment of intestinal indigestion may be most rationally outlined after a chemical and a bacteriological examination of the excreta has been made.

An item of importance in the treatment of such conditions is the withdrawal of the usual diet and the substitution of various milk products which contain large numbers of active lactic acid-producing

organisms. Koumys, kefir and matzoon, each containing approximately 10 per cent. of lactic acid, probably depend upon various strains of lactic acid-producing organisms for the benefit which follows their administration.

More easily prepared, and practically of as much benefit, are the various forms of home-modified milk. Buttermilk is of great service, but it is often difficult or impossible to obtain. Sour milk is, perhaps, of just as much service but not quite so appetizing, and yet it is remarkable how quickly the "taste" for sour milk can be acquired if the more euphonious and less disgusting name of "fermented milk" is used.

Sour milk curds are quite readily taken. They may be covered with milk sugar which renders them more acceptable to some and certainly more efficient to all. There are in the market agents which are supposed to be of great value in producing such fermented milks. As they are modified by age, heat and cold, they are not entirely constant and therefore not entirely reliable. A way out of the difficulty is the method that has been used with success by Dr. Hunkin. A half of a pound of cream cheese (California cream cheese preferably) is cut into small pieces and stirred into a pint of fresh milk. This is kept in a warm temperature for three hours and then placed in a cold place for the remainder of twenty-four hours. A cupful of this mixture is then added to a quart of fresh milk and the same performance as on the previous day is gone through. This is repeated for three days and on the fourth day the "strain" of lactic acid-producing organisms is a very active and a very reliable one. On this fourth day the cupful of the mixture is added to three or four quarts of fresh milk, which, after twenty-four hours, is ready for use. Three pertinent facts may be mentioned in the consideration of the use of these fermented milk products, namely: (1) They are more easily digested than plain milk; (2) no ill effects have been observed following their use, and (3) many obscure cases of arthritis show marked improvement subsequent to the use of such milk products when used as an exclusive diet.

No attempt has been made in this paper to consider all of the diseases of the mucous membranes which may be followed by arthritis.

No attempt has been made in this paper to consider, in detail, the treatment of the diseases that have been considered.

It is not the wish of the author to exaggerate the importance of the observations submitted, nor to minimize the value of any remedy that has been of service to any one. The relation assumed to exist between diseases of the mucous membranes and arthritis is not new, but it is of importance because by a more thorough consideration and treatment of the former the latter may be, to a great extent, avoided, and surely we all agree that prophylaxis is preferable to cure.

Therefore, in virtue of the evidence which has been submitted, it is hoped that you will not only find ample reason to warrant you in returning a verdict in favor of the relation alleged to exist between diseased mucous membranes and diseased joints, but also that in all cases of diseased joints

you will consider the mucous membranes guilty of such relation until they have been proved to be innocent.

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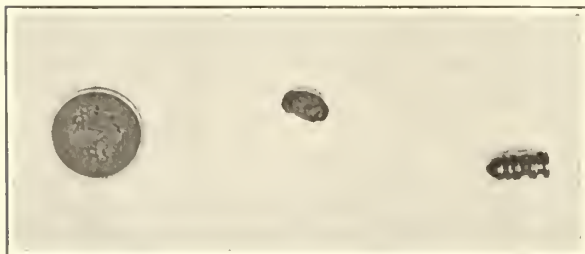
## REMOVAL OF FOREIGN BODIES FROM THE LUNG.\*

By E. C. SEWALL, M. D., San Francisco.

### Report of Cases.

The first case I wish to report was a girl, age two, who was brought to the Lane Hospital with the history of having aspirated a bean the afternoon previous, which in a fit of coughing the mother thought was partly or completely expelled. Following the accident there were a few attacks of dyspnea and cyanosis, but the child otherwise was apparently well until 2 a. m. of the day of entering the hospital. She then began to have severe dyspnea and cyanosis which continued up to the time seen by me. Prior to this trouble the child was in good health excepting a slight cold.

Examination of the patient made by Dr. T. M. McNamara, house surgeon, showed the child in a semi-comatose condition. Intense cyanosis; dyspnea; rapid and feeble pulse and occasional cough. Temperature, 103°. Pulse, 150. Respiration, 60-70. Inspection showed the right side of the chest to move less than the left and it presented a sunken-in appearance anteriorly. The movement of the left side



Five-cent piece, half bean, and clock-leg mentioned in text.

was labored. Percussion, dullness over practically whole of right lung. Auscultation: Right, respiration murmur feeble except over upper part of lung; left, lung negative except for presence of large mucous rales.

The general condition of the child was bad. She was taken to the operating-room, where ether in small quantity was administered and one of the small-sized Killian tubes introduced through the cords and down to the beginning of the right bronchus where a large brown bean was plainly distinguished. It was entirely obturating the bronchus and had so swollen that it was impossible to pass any instrument between it and the inflamed wall of the bronchus. After working for some minutes the difficulties were so great that a tracheotomy was done in order to use as short a tube as possible. The work was now much easier, that is, the field of endeavor was much nearer, though great difficulty was had in making any impression upon the tightly

held bean. Finally the black shell of the bean was detached by small forceps and drawn out. I could now see the division between the cotyledons and managed to push one of them downward past its fellow. It was now the work of a moment to withdraw the loosened half bean. At this point the baby began to show signs of collapse, and though to complete the removal would have been but the matter of a moment, the child did not rally but died on the table.

The criticism I would offer in this case is that when once the bean had been seen and the difficulties of its removal recognized, a tracheotomy should have been done at once. The fifteen minutes' time thus gained might have saved the child's life. Under ordinary circumstances a tracheotomy may not be necessary, but where the life of the child hangs on the time consumed in the operation it should be done unhesitatingly. It would also have been better in such a case to have operated without an anesthetic, but this occurred some years ago when such work was commonly done under anesthesia.

The second case was one of longer-standing trouble, but more felicitous ending. Girl child, 6 years old. Previous to illness very strong and always well. On September 12, 1910, during play the child aspirated the brass leg of an alarm clock. She choked severely and ran to her mother, who said there was a little bleeding from the throat. There was, however, no pain of any moment nor has there been any local pain since. Up to four weeks ago the child appeared to be well and the incident, though not forgotten, was thought to have passed without consequences. Four weeks ago, prior to the time she entered the Lane Hospital, she became sick at the stomach. "Threw up" for several days and began at the same time to cough—there had been no particular cough up to this time. This cough persisted up to her entrance to the hospital and was at times very severe. Once she coughed almost steadily for four hours—till she was exhausted. After a few days she would appear better for a short time, then the coughing and prostration would come on again. There was a daily temperature and the formerly active child became dull and listless and content to lie quiet. She complained almost constantly of headache and earache. Never expectorated much till about one week before coming to the hospital, then there was some blood stain to the expectoration.

The child was taken to the local physician, Dr. C. H. Congden of Jamestown, California, who had an X-Ray picture made at once. This showed a foreign body in the left lung. When first seen by Dr. Congden the child was emaciated, coughed exhaustingly. Temperature, 103°; pulse, 140. No respiratory sounds could be made out on the left side. After attempts to remove the foreign body by manipulation of the child proved futile, a tracheotomy was done and a sound was passed as shown in the X-Ray plate and the foreign body could be felt plainly and its position was undoubtedly changed, for afterward the breath sounds in the left upper lobe of the lung were fairly normal.

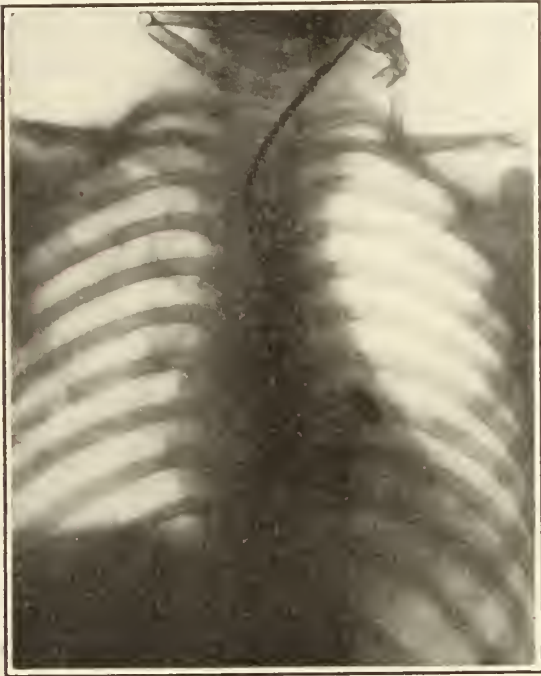
The foreign body had first obturated the entire left bronchus and then through the probing was pushed on till it occupied the position in which I found it, that is, blocking the bronchus to the lower lobe of the left lung.

When first seen by me through the courtesy of Dr. Wallace I. Terry, about 6 months after the aspiration of the foreign body, the child showed extreme emaciation, had no appetite, and had constant coughing paroxysms. She was taken to the operating-room. Ether was administered, the tracheotomy wound opened and a small-sized Killian tube as modified by Brunnings introduced through it. The foreign body was quickly found, entirely blocking the left lower bronchus. The shining, smooth metal end

\* Read at the Forty-first Annual Meeting, State Medical Society, Santa Barbara, April, 1911.



showed very plainly. As seen in the X-Ray plate it showed itself to be about the size and shape of a "22 long" calibre rifle slug. It was so firmly impacted in the bronchus that it was impossible to grasp it by the most delicate forceps. It was barely possible to pass a wire with small hooked extremity between it and the inflamed, swollen and easily bleeding wall. The blood was partly stayed by the use of adrenalin and the mucus and blood drawn out by means of my suction apparatus which I use for tonsil work. The field was then kept clean and finally I was able to hook the foreign body with an improvised instrument, a small, long-handled hook, fashioned at the time by Dr. Green, who was assisting. We had some pieces of moderately thick



Showing foreign body in bronchus. Case No. 2.

german silver wire at hand and this was quickly converted by means of pliers and file into instruments of various shapes. On hooking the foreign body firmly it was drawn up against the end of the tube and tube and foreign body drawn out simultaneously. The tracheotomy wound was drawn together with surgical plaster. The following morning the patient was sitting up in bed and asking for food, a thing she had not done for months, and in a week she was out and shortly afterward went home with tracheotomy wound closed and quite well. There were no symptoms of pneumonia following. I wish to call attention to the light area in the X-Ray plate showing the compensating emphysema of the left upper lobe of the lung.

The third case was a child of 17 months, brought to the Lane Hospital with the history of having swallowed a five-cent piece five months before. Since the accident she has been able to swallow liquid food but regurgitated all solid food. Has also had frequent attacks of coughing. Physical examination made by Dr. Boardman negative except for many large moist rales transmitted from the upper air passages. X-Ray showed the coin to be lodged transversely and about on the level of the upper end of the sternum. The child was given an anesthetic and the foreign body removed from the esophagus by means of the Killian tube. It was found to be covered by some brownish material which on being removed was found to be grape skin. The child made an uneventful recovery and left the hospital in forty-eight hours, well.

## AN OCCIPITO ATLANTOID AND AN ATLANTO-AXOID DISLOCATION.

By L. L. THOMPSON, M. D., Gridley.

I wish to report a case of intense interest, both because of its rarity, and because two persons are now being held before the Superior Court of Butte County, California, on a murder charge, accused of being responsible for the condition.

The person, a young girl, H. R., aged 13 years, was found dead on June 26, 1911, at about 7:30 p. m., three miles southeast of Gridley. She was lying on the bed, where she had been carried by her step-uncle, A. L., from the garret. In the latter place, according to the testimony, she had been tied by her step-mother, E. R., to a studding 4 feet 8 inches above the floor, the rope or cord being looped in front of the neck, carried back around the neck, and over the back part of the shoulders, then under the arms, across the chest, then up to the studding opposite the back part of the neck, and tied so as to hold her firmly to the studding, in a standing position.

There were indentations, as from a cord or rope, encircling both wrists and both ankles, there were two livid marks, transversely across the front of the neck extending to about the angles of the jaw. There were three marks on the inner side of the right arm, and one on the outer side, corresponding about to the insertion of the deltoid. These marks indicated that the arm had been tightly grasped by a hand. There were also several marks and slight excoriations of the skin on various parts of the body.

The body from the waist up was very much discolored and ecchymotic, but from the waist down, there was very little discoloration, excepting a few faint bluish marks upon the calves, which, it is said, were caused by a broad strap with which she had been whipped.

Passing to the cervical region, we found a condition of very great interest, a like condition (pathological) being rarely met with. There were two complete dislocations of the cervical vertebrae, one between the occiput and atlas and one between the atlas and axis.

The only visible peculiarity disclosed at autopsy was a lengthening and an abnormal extension of the neck. An incision was made from the occiput to the seventh cervical vertebra, the muscles carefully dissected down to the spinal column, revealing the following extremely rare condition, and, so far as I can find, there are none similar previously reported.

The occiput was dislocated backward, the condyles were completely separated from the concave articulating surface of the atlas, the separation being at least half an inch, my forefinger being able to pass between the articulating surfaces on both sides. The atlas was dislocated forward on the axis, and separated by about the same distance as noted for the joint above.

The ligaments were partially torn or twisted from their attachments, and the odontoid process had slightly bruised the spinal cord, as shown by a slight extravasation of blood into it.

An exhaustive research of the literature fails to show a single similar case reported, and only five that have a partial similarity in that they have a single occipito-atloid dislocation.

This dislocation was undoubtedly caused by a peculiar combination of forces, such as to cause a twisting to a point beyond endurance and at the same time causing extreme extension.

Lassus, Palleta, Bouisson, Dariste, and Ashhurst, each report a single case of occipito-atlantoid dislocation caused by various forces or combination of forces, but so far as I can find, there is not a single case on record of a double dislocation of a similar character; it stands unique and alone.

**PROCEEDINGS OF THE ANNUAL MEETING  
OF THE CALIFORNIA ASSOCIATION OF  
MEDICAL MILK COMMISSIONS, HELD IN  
SANTA BARBARA, APRIL 18, 1911.**

The meeting was called to order by Dr. T. C. McCleave at 2 p. m.

On motion, duly seconded, Dr. T. C. McCleave was appointed permanent Chairman and M. E. Jaffa temporary Secretary.

Dr. McCleave explained the purpose of the meeting to be the formation of a State Association by a federation of existing milk commissions.

On motion of Dr. Kress, it was voted to form such an association.

On motion, duly seconded, a committee on organization was appointed, consisting of Drs. T. C. McCleave, G. S. Baker and G. H. Kress.

The report submitted by Dr. Kress for the said federation of milk commissions was as follows:

I. The name of the organization shall be the California State Association of Medical Milk Commissions.

II. The officers shall be a President, First and Second Vice-Presidents and Secretary-Treasurer, these constituting an Executive Committee with power to act.

III. The funds of the Association shall be derived from assessments on component commissions, made in proportion to the amount of milk certified by each commission.

IV. Officers shall hold office for one year or until their successors are elected.

V. Meetings shall be held in connection with the State Medical Society, or at the call of the Executive Committee.

VI. All other rules shall conform to those of the American Association of Medical Milk Commissions.

The report submitted by Dr. G. H. Kress was on motion duly seconded and unanimously adopted.

On motion, duly seconded, a Nominating Committee was appointed by the chair, consisting of Drs. Baker, San Francisco; Kress, Los Angeles; Stoddard, Santa Barbara, and Fly, San Diego.

The Nominating Committee duly reported as follows: For President, Dr. T. C. McCleave, Berkeley; First Vice-President, Dr. F. P. Mattison, Pasadena; Second Vice-President, Dr. T. A. Stoddard, Santa Barbara; Secretary-Treasurer, Dr. Adelaide Brown, San Francisco.

On motion, duly seconded, these officers were unanimously elected.

The following papers were then read as per printed program: First, Dr. G. S. Baker gave a resumé of his paper which was read the previous day before the California Public Health League; second, Dr. C. L. Roadhouse read a paper on the "Prevention of Bovine Tuberculosis"; third, Dr. C. M. Haring read a paper, "The History of the Control of Tuberculosis in Three California Dairies."

The three papers read were thoroughly and ably discussed.

Dr. Fleischner gave an interesting short talk concerning the value of feeding certified milk to babies under the auspices of the Associated Charities. The

doctor indicated how the death rate had decreased since certified milk had been used.

Dr. Black discussed to some extent with Dr. Fleischner a claim that under the present conditions only the children of the rich and the very poor were able to obtain certified milk. Dr. Black believed that all children should have certified milk, and the way to arrive at such a result was to pass a tuberculin ordinance requiring that all cows be tested with the tuberculin test if such cows were to supply milk to be used for consumption as such.

An interesting discussion followed Dr. Black's remarks concerning the testing of cows with the tuberculin test, such discussion bearing on initial temperatures, number of temperatures, temperature of reaction, etc.

The question was also discussed, Does an increase of dose eliminate the immunity factor?

Dr. McCleave discussed very thoroughly the question of educating first the doctors themselves, second their patients, in the value of certified milk. It would appear that much has been accomplished by such an educational campaign.

Dr. Pottenger made some remarks to the effect that he did not believe all tuberculosis was due to milk and that the question of milk should not be given too much prominence in this connection. Dr. Pottenger was under the impression that about one-twelfth of the tuberculosis now existing is due to infection from milk, but even this was, according to the doctor, amply sufficient for the campaign and general agitation in favor of certified or "tuberculin tested" milk.

Dr. Parkinson confirmed the views of Dr. Pottenger in that there is a very small amount of infection due to milk; that such an opinion is based upon the experience that Dr. Parkinson has had in his practice. Dr. Parkinson as President of the Sacramento Board of Health works for clean milk—that is, clean, sanitary dairies and healthy cows. There are no certified dairies serving milk to Sacramento.

Dr. Baker replied to the remarks of Drs. Parkinson and Pottenger concerning the amount of tuberculosis due to the infection from milk. He was strongly of the opinion that if only one-twelfth of the tuberculosis found were due to infection from milk that it was more than sufficient incentive for the educational work in re certified milk now being carried on.

Dr. Hare of Fresno discussed the conditions existing there, and stated that they had no trouble with the dairymen in carrying out the ordinance. Dr. Hare is of the opinion that the state should pay, at least in part, for the cost of animals which react under tuberculin test.

The interesting discussion on tuberculosis being concluded, Dr. McCleave offered for adoption the regulations governing the manufacture of certified butter. The regulations were read and adopted.

After the reading of the regulations Dr. J. N. Force of Berkeley briefly discussed his paper, entitled "The Control of Pathogenic Organisms in Butter," which was read before the California Public Health League the previous day.

Dr. Baker was appointed by the California State



Association of Medical Commissions as delegate to the meeting of the Association of the American Milk Commissions, held at Philadelphia in June, 1911.

M. E. JAFFA, Secretary.

## REGULATIONS GOVERNING THE MANUFACTURE OF CERTIFIED BUTTER.

1. No factory under certification shall produce butter of a lower grade than certified.

2. Every factory desiring certification shall make application to the secretary of a medical milk commission, giving in detail the sources of its cream or milk supply with the number of cows in each herd, and shall deposit in cash or certified check a sum sufficient to cover a tuberculin test of each cow in each herd by the medical milk commission's expert at one dollar per head.

(a) No herd showing 10% of reactions shall deliver cream or milk to a certified butter factory.

(b) No refund shall be made on account of a herd failing to reach the required standard.

(c) Every animal reacting to the tuberculin test shall be immediately removed from the premises.

(d) All additions to herds shall be made in accordance with the requirements for certified milk.

(e) A semi-annual tuberculin test of all animals used in the production of cream shall be made by the commission's expert.

3. All premises producing cream, or manufacturing certified butter, shall be inspected by a committee of not less than two, from the medical milk commission before certification.

(a) The necessary traveling expenses of such committee shall be deposited with the secretary of the medical milk commission at the time of making application.

4. The management of the herd, the construction of stables, milk houses and butter factories shall comply with all the sanitary requirements adopted for the production of certified milk.

5. The sterilization of all utensils and implements used in the handling of milk and cream and the manufacture of certified butter shall correspond with similar rules for certified milk.

6. The starter shall be made from milk produced under these regulations. The milk shall be pasteurized twice at intervals of 24 hours, at 180° F. After pasteurizing, cool to 80° F. and add any good commercial dry lactic ferment, keep at 75° F. for 15-20 hours.

For the second propagation, pasteurize the starter milk at 180° F. for 20 minutes, cool to 70° F. and add another starter. Acidity of starter shall not exceed .7% after coagulation.

7. A medical examination of all persons concerned in the production, handling or manufacturing of milk, cream and certified butter shall be made by a member of the medical milk commission before certification.

(a) Monthly medical inspections shall be made after certification.

(b) The presence of an infectious disease on the farm, or in the factory, shall be cause for withdrawal or suspension of certification.

8. No cream shall be more than 24 hours old when delivered to the factory.

(a) It shall not be accepted by the factory if it contains more acid in 50 c. c. than will be neutralized by 13 c. c. of N/10 alkali solution as determined by Mann's Acid Test.

9. No pasteurized cream shall be used in the manufacture of certified butter.

10. Milk shall be removed from the stable as soon as drawn, run through a separator and immediately cooled to 50° F. and held at this temperature until delivered to the factory.

(a) If no farm separator is used, the milk shall be cooled to 50° F. as soon as drawn and held at 50° F. until delivered to the factory.

(b) Separator "slime" shall not be added to the cream.

11. Certified butter shall contain not less than 82% of milk fat and not more than 14% of moisture. If coloring matter is used the label must so state.

(a) It must score not less than 95 commercially.

(b) It must be full weight, wrapped in paper and sealed in a carton, which must bear the maker's name, the date of manufacture, and weight.

(c) The seal of the commission shall be affixed to the carton.

(d) The carton shall be submitted to the commission for approval before using.

12. Bacterial examinations of cream shall be made monthly, or oftener if considered necessary by the commission.

(a) Cream shall not contain more bacteria per c. c. than the standard of A. A. M. C. for certified cream, or if they have no standard, adopt B. A. I. score for perfect cream.

(b) A chemical examination of butter shall be made at least semi-monthly.

13. The butter factory shall be responsible to the commission for the carrying out of all regulations applying to the production of cream, and shall bear all expenses connected with certification.

14. Expense of maintaining certification shall be:

(a) Monthly inspection of butter factory and all dairies supplying cream, by the commission's expert, \$10 per day and expenses.

(b) Additional inspections when required by conditions.

(c) \$3 for each bacterial examination of cream.

(d) \$2.50 for each chemical examination of butter.

(e) \$1.25 per thousand for the commission's certificates, one of which shall be used on each carton of butter produced.

It is the sense of this meeting of the State Association of Medical Milk Commissions that the regulations for the production of dairy products, other than milk or butter, certified to by a medical milk commission, shall conform to those adopted for the production of certified milk and butter.

Adopted by California Association of Medical Milk Commissions, Santa Barbara, April 18, 1911.

## A HISTORY OF THE CONTROL OF TUBERCULOSIS IN THREE CALIFORNIA DAIRIES.

By C. M. HARING, D. V. M.

In the control of tuberculosis in dairy cattle we have a problem concerning which there is much to learn. Believing that a review of the efforts to keep tuberculosis out of certain California dairies would be of considerable educational value to dairymen, veterinarians and others interested in dairy sanitation, and be of especial interest to those attending this meeting, I have endeavored to recall the incidents connected with my work in certain dairies, and have made a study of the data concerning these dairies and of their tuberculin test records on file at the University. These are of tuberculin tests made by Dr. Ward, Dr. Roadhouse and myself, or by University students working under our supervision.

### DAIRY NO. I.

The cattle in this dairy were tested with tuberculin for the first time January 5th, 1905. The results of this test, and those subsequently made, are shown in table number I. The number of cows that were tested was 77, of which 14 were condemned because of a reaction to tuberculin, the per-

centage of reactors being 18. The reacting animals were all removed to another dairy, and the cow stable disinfected. In 1906 tuberculin tests were made on two dates, about half of the herd being tested on each date. The results are as follows:

March 12th: Number of cows tested, 62; number of reactors, 2; percentage of reactors, 3.

September 29th: Number of cows tested, 83; number of reactors, 6; percentage of reactors, 7.

Between the dates of the last test mentioned above and the first test on January 5th, 1905, 130 cows had been added to the herd from herds showing an average of 27 per cent. reactors. During the twelve months following this 13 cows were purchased for the herd from herds showing an average of 50 per cent. reactors, and on the regular annual test, September 14th, 1907, 144 cows were tested, 32 of which were condemned, the percentage of reactors being 22. During the next year 21 cows were purchased from herds showing 19 per cent. reactors, and on January 29th, 1908, 130 cows were tested, 22 of which were condemned, the percentage of reactors being 17. During the next year 18 cows were purchased from miscellaneous sources, only one cow reacting, which is not included in the 18 above mentioned. At the next semi-annual, August 12th, 1908, 128 cows were tested, 4 of which were condemned, the percentage of reactors being 3. It will be noted from the table that at this time the practice of testing the entire herd every six months instead of every twelve months was adopted.

The next year's purchases were very reckless. On November 26th, 1908, a herd of 43 cows were tested for purchase, 10 of these were passed, and 33 condemned because of their reaction to tuberculin. Of the animals which passed several were added to the tested herd. The records do not show just how many. I personally recollect making this test. I knew that a large number of reactors would be found because the year previous I had been called to render professional services at this dairy. In the month previous to the time when I was called four cows had died from an unknown disease which had been causing occasional losses for some time. On a physical examination of the herd I decided that bovine tuberculosis was causing the loss, and my diagnosis was verified by an autopsy performed on one of the most emaciated cases. The owner undertook to tuberculin test the herd himself and at the time of the purchase by Dairy No. 1 he had weeded out most of the advanced cases which showed physical symptoms. On March 3d, 1909, another reckless purchase was made of 60 cows, 53 of which were condemned by tuberculin test, 4 others showed suspicious rise in temperature, and three passed. These 3 were added to the clean herd.

The next semi-annual test performed in 1909 showed only 2 per cent. of reactors, the number of cows tested being 125, number condemned being 2. Purchases between this date and January 30th, 1910, were 53 animals from herds showing 5½ per cent. of reaction. On January 30th, 1910, 114 cows were tested, 7 of which reacted, the percentage of reactors being 6. In all to June, 1910, 432 cows had been tested for purchase, 84 of which

reacted, the percentage of reactors being 24. Since that time the animals have been purchased from herds showing 3 per cent. or less of reaction. Figures of these purchases are shown in the tables.

To summarize the tuberculin test of this dairy:

Total number of cattle tested 506, total number condemned 184, per cent. condemned 36+, total number of tests including retests 1509.

#### DAIRY NO. 2.

Cattle in this dairy were tested with tuberculin for the first time in February, 1908. Number of cows that were tested was 196, of which 110 were condemned because of a reaction or on account of physical symptoms, the percentage of reactors being 56. I will not take the time to describe in detail the results of each tuberculin test. They are summarized in the following table. However, I would like to point out the significance of some of the figures. You will note the high percentage of reactors at the original test mentioned above and it is probable that there were a number of tuberculous animals left in the herd which were not detected by this test. The result is that at subsequent tests the percentage of reactors has been quite high. This was enhanced by purchases from extremely tuberculous herds. One instance of such a purchase occurred in August, 1908. A buyer from this dairy went to a large dairy in South San Francisco containing over 400 cows. He selected 47 cows which appeared to him to be in good physical condition. These were tested by a representative from the University and all but 8 reacted to tuberculin, or showed such a high initial temperature that it was deemed inadvisable to inject them. The 8 which passed the test were purchased and added to herd No. 2. At the following semi-annual test three of these reacted. They were purchased together with some other reacting animals and taken to the University Farm, at Davis. On June 3, 1909, they were tested with tuberculin, using a dose of 3 cc. of University of California tuberculin and none of them reacted. On July 4th of the same year they were tested with 4 cc. of Bureau of Animal Industry tuberculin. Two of them showed a rise of temperature but the curve was not typical of a tuberculin reaction. On autopsy, these animals proved to have tuberculosis; however, in only one of these were the lesions so advanced that their failure to react could be attributed to that cause. It is a well known fact that animals which have reacted to tuberculin will occasionally fail to react with subsequent tests, even when this subsequent test is made after an interval of six months.

To summarize the tuberculin tests of this dairy:

Total number of cattle tested 595, total number condemned 332, per cent. condemned 55, total number of tests including retests 1414.

#### DAIRY NO. 3.

The owner of this dairy has been more careful or perhaps more fortunate in purchasing cows, and as can be seen by the table the number of reacting cattle found in this dairy is comparatively small. At the first tuberculin test, 12 animals out of 70 reacted. These 12 reacting cows had all been purchased at one dairy in the neighborhood. If you



will inspect the other tests up to and including June, 1910, you will note that up to that time 32 cattle had reacted, including the 5 condemned on purchase. Of these 28 can be traced directly to the infected dairy, mentioned above, from which purchases were made.

The four cows condemned in November, 1909, did not show typical reactions, merely a suspicious rise, and there is doubt as to whether they were tubercular, however they have been included in the totals.

The totals shown in the table indicate that in all the number of individual cattle tested at this dairy was 593, total number condemned 46, total per cent. of condemned 7, total number of tests including retests 1059.

Table Showing the Results of Frequent Tuberculin Tests in Three Dairies.

DAIRY NO. 1.			
	No. of cows tested.	No. Condemned.	Per cent.
January 5, 1905.....	77	14	18+
March 12, 1906.....	62	2	3+
September 29, 1906.....	83	6	7+
September 14, 1907.....	144	32	22+
January 29, 1908.....	130	22	17—
August 12, 1908.....	128	4	3+
April and September, 1909.....	125	2	2—
January 30, 1910.....	114	7	6+
August 1, 1910.....	99	4	4—
March 21, 1911.....	118	4	3+
Purchases to June, 1910.....	342	84	24½
Purchases since June, 1910.....	87	3	3+
Total number of cattle tested.....	506		
Total number condemned.....		184	
Per cent. condemned.....			36 2-3
Total number of tests, including retests.....	1509		

DAIRY NO. 2.			
	No. of cows tested.	No. Condemned.	Per cent.
February, 1908.....	196	110	56+
February, 1909.....	189	13	7—
November, 1909.....	176	37	21+
June, 1910.....	246	18	7+
February 15, 1911.....	208	19	9+
Purchases to June, 1910.....	385	135	35+
Purchases since June, 1910.....	14	....	....
Total number of cows tested.....	595		
Total number condemned.....		332	
Per cent. condemned.....			55+
Total number of tests, including retests.....	1414		

DAIRY NO. 3.			
	No. of cows tested.	No. Condemned.	Per cent.
November, 1908.....	70	12	17+
April, 1909.....	57	9	15+
November, 1909.....	73	4	5+
May, 1910.....	138	2	1+
November, 1910.....	198	6	3+
Purchases to June, 1910.....	203	5	2+
Purchases since June, 1910.....	320	8	2½
Total number of cows tested.....	593		
Total number condemned.....		46	
Per cent. condemned.....			7+
Total number of tests, including retests.....	1059		

The totals shown in the above tables speak for themselves. They furnish an object lesson showing the prevalence of bovine tuberculosis in the dairy cows of the San Francisco Bay region. If we select out the tests made on animals being tested for the first time in their lives we find they number 1694, of which 371 reacted, the reactions being 21.9%. This indicates the prevalence of tuberculosis in the dairy herds from which dairies 1, 2 and 3 were recruited, and when taken in connection with the figures of numerous other tests made in San Francisco Bay region and in Central California, shows that they represent about the percent. of reacting cows in the dairies of that part of the country.\*

#### THE ACCURACY OF THE TUBERCULIN TEST.

The data in the above tables is worthy of study because of the light thrown on the value of the use of tuberculin in the diagnosis of bovine tuberculosis in cattle. Those who are not familiar with the technic of the use of tuberculin by veterinarians I refer to Bulletin 199, of the Agricultural Experiment Station, which can be obtained by writing to the director of the above station, at Berkeley, Cal. As a brief explanation concerning the accuracy of the tuberculin test, I will quote Resolution II from the Report for 1910, of the International Commission on the Control of Bovine Tuberculosis, appointed by the American Veterinary Medical Association:

#### Resolution 2—Tuberculin Test:

1. That tuberculin, properly used, is an accurate and reliable diagnostic agent for the detection of active tuberculosis.

2. That tuberculin may not produce a reaction under the following conditions:

- (a) When the disease is in a period of incubation.
- (b) When the progress of the disease is arrested.
- (c) When the disease is extremely generalized.

The last condition is relatively rare and may usually be detected by physical examination.

3. On account of the period of incubation and the fact that arrested cases may sooner or later become active, all exposed animals should be retested at intervals of six months to one year.

4. That the tuberculin test should not be applied to any animal having a temperature higher than normal.

5. That any animal having given one distinct reaction to tuberculin should thereafter be regarded as tuberculous.

6. That the subcutaneous injection of tuberculin is the only method of using tuberculin for the detection of tuberculosis in cattle which can be recommended at the present time.

7. That tuberculin has no injurious effect on healthy cattle.

There is a popular notion that the failure of an animal to react the second time constitutes a demonstration of the inaccuracy of the test. The falsity of this becomes evident upon consideration of the facts regarding the result of a previous injection of tuberculin; of the fact that recovery may have occurred in the meantime; or that the progress of the disease may have become arrested.

When the tuberculin test first came into use it was recommended by German and French veterinarians, and others who were the pioneers in the use of tuberculin as a diagnostic agent, that the temperature of the animals be taken every two hours after the injection of tuberculin until the twenty-fourth hour. However, it has been found that a test accurate enough for all practical purposes can be made by taking the temperature twice before injection and afterwards on the eighth, tenth, twelfth, fourteenth, sixteenth and eighteenth hours. From a study of the temperature records of 253 reacting cows, made by the California Agricultural Experiment Station, in which the subsequent temperatures

\* Ward and Haring. Bulletin 199, Agricultural Experiment Station, Berkeley, California, August, 1908.

were taken on the tenth, twelfth, fourteenth, sixteenth and eighteenth hours, shows that of the 253—

142 showed a rise above 103.5 degrees on or before the 10th hour—56%.

71 showed a rise above 103.5 degrees between the 10th and 12th hours—29%.

29 showed a rise above 103.5 degrees between the 12th and 14th hours—11%.

6 showed a rise above 103.5 degrees between the 14th and 16th hours—2%.

5 showed a rise above 103.5 degrees between the 16th and 18th hours—1.9%.

Of the 253 tests on the above animals the temperature records show that:

4 fell to normal before the 12th hour.

12 fell to normal before the 14th hour.

19 fell to normal before the 16th hour.

17 fell to normal before the 18th hour.

The rest remained above normal at the last temperature taken on the 18th hour. Hence if only one temperature were taken and that on the 10th hour, it would have detected only 142, or 56% of the 253. If taken at the 12th hour it would have detected but 209, or 82% of the total number. If taken at the 14th hour, it would have detected 226, or 89% of the total number. If taken at the 18th hour, it would have detected 201, or 79% of the 253.

On account of the failure of the tuberculin test to detect tuberculosis in an animal when the disease is in a period of incubation, it is probable that many tuberculous animals will successfully pass the tuberculin test, when these animals are in badly infected herds and are constantly exposed to infection. To obviate the probable introduction of animals affected with tuberculosis in its incubation stage, the San Francisco County Medical Milk Commission and the Alameda County Medical Milk Commission do not permit the dairies, producing certified milk under their supervision, to purchase any cows from herds showing ten per cent. or more of reactors. A study of the above tables will show that there has been a failure to keep out tuberculosis by the tuberculin test alone. Tuberculous animals which do not react to tuberculin, such as those in the period of incubation, or latent cases, but which develop active tuberculosis later, are frequently carriers of the virus, although bought and sold as sound tested animals. These cannot, at present, be differentiated from sound animals, therefore, all cattle coming from herds in which the disease exists, should be considered as suspicious. The sound herd is the unit to deal with.\*

As it is practically impossible in California to find dairymen with herds free from tuberculosis, who are willing to sell their animals, the only recourse would be for the producers of certified milk to raise their own calves on the milk from their own sound herds.

## BOVINE TUBERCULOSIS AND ITS RELATION TO THE PUBLIC HEALTH.

By GEO. S. BAKER, Bureau of Animal Industry.

Whatever relationship there is between tuberculosis of the bovine and the public health, exists from the fact that we are milk drinkers and meat eaters. Under our present civilization, the dairy cow plays a wonderfully important part in the development of the human family. From her living body comes the most valuable human food. Eliminate her and a substitute must be found at once or untold thousands of babies would die of starvation. The dairy cow is the most common foster-mother of the human infant. But our interest in the dairy cow is not limited to infancy. When the child reaches the age at which milk ceases to be his only food, he adds butter and cream and, later on, cheese to his dietary, while continuing the use of milk as a beverage, and this use of dairy products continues to the end of life. After the cow has exhausted her usefulness as a producer of milk and its products, she is slaughtered and served up to us as meat. Hence, it behooves us to consider very carefully whether the products so unselfishly yielded to us by the cow, and which ordinarily are so beneficial, may not under certain conditions become a menace to the health of the race. Esthetically it is not pleasant to feel that we are feeding on the products of a diseased animal, but when we realize that the animal products, milk, butter, cheese and meat, may and often do, carry the virulent, active agents of disease from the cow to us, it becomes a question of a good deal more than sentimental importance whether any of the diseases of the cow are transmissible to us. I shall endeavor to place before you such data regarding one of the diseases—tuberculosis,—common to both the bovine and human species, which, if it does not fully convince you of its transmissibility, will, I hope, prove sufficiently interesting to induce you to pursue the question further.

Tuberculosis is one of the few infectious diseases which attacks widely different species. It is the commonest disease of cattle as it is of man. In considering this question, I shall emphasize the dairy side rather than the meat, for the reason that dairy products are mostly eaten raw, while meat is nearly always more or less thoroughly cooked. Raw cow's milk is also used as the principal, if not the only food, at a period when we are most susceptible to danger.

Like man, the cow contracts tuberculosis only from some previous case of the same disease. Like man, the commonest location of tuberculosis in the cow is the lungs. On account of anatomical differences there is not the same tendency to form large cavities in the lungs, but nevertheless we do find small abscesses forming and these sooner or later open into the bronchioles. The tuberculous cow is not usually subject to paroxysms of coughing like the human, but raises the tuberculous matter into her mouth, probably in the process of regurgitation, with only an occasional cough. The cow does not spit, so when she raises pus from her lungs, she swallows it. Thus she not only is con-

\* Report of Committee on Dissemination of Bovine Tuberculosis. Proceedings of the American Veterinary Medical Association, 1910.



tinually reinfesting herself but is also passing, more or less continuously, large quantities of bacilli with her feces. When she does cough, however, she expels large quantities of moist air with a good deal of force and consequently scatters the bacilli over her own food and that of her neighbors. In feeding she secretes a large amount of saliva so that she slobbers over her food and another animal eating from the same place becomes infected. Tuberculosis of the cow is so insidious that she may have the disease for years without the condition being suspected. It is not practicable to recognize tuberculosis by a physical examination, except in advanced cases. This is due to several reasons, the large flat ribs, the thick skin covered with hair, the sounds from the large abdominal organs, but principally to the difficulty of restraining the animal for a sufficient length of time to permit of a careful examination. During a portion of the time before the disease reaches an advanced stage, she is usually passing large numbers of virulent bacilli with her milk and feces. Fortunately we have a reliable means of protecting ourselves from tuberculous animals in the tuberculin test. While this test has been subjected to a good deal of criticism and while it is true that certain cases do not react to the test, these are limited to either the incubative stage or to advanced cases which are clinically evident. On the other hand, if the method of making the test be faultless, a positive reaction *always* indicates that the animal in question is infected with tuberculosis. Experience has abundantly proven that very few dairy herds are free from tuberculosis, and while herds of twenty or less may have only one or two animals affected, or may even be free, large herds may contain sixty, eighty or even one hundred per cent tuberculous. The City Health Officer of San Francisco estimates, and I think he is conservative, that forty per cent of the cows supplying milk to that city have tuberculosis. It has also been well established that tuberculous cows frequently pass virulent tubercle bacilli with their milk, without having visible disease of the udder. This is shown by the British Royal Commission on Human and Animal Tuberculosis, by Bollinger, Bang, Mohler, Schroeder, Moore and a host of other investigators. Moore estimates that 15% of diseased cows give off live bacilli with their milk, while only about 2% show tuberculosis of the udder. The British Royal Commission demonstrated the ease with which tubercle bacilli may be eliminated by the milk by injecting human bacilli under the skin of the shoulder of a cow. She began excreting the bacilli from the udder seven days later and continued to do so until her death from generalized tuberculosis thirty days after inoculation. Titze also showed that human tubercle bacilli injected into the jugular vein of milch cows may be given off with the milk. In his first experiment the bacilli began to appear in the third week and continued until the one hundred and forty-fourth day. In a second test the bacilli appeared in twenty-four hours and persisted until the ninety-ninth day.

While it is true that we obtain our supply of bovine tubercle bacilli through milk and its prod-

ucts, the infection of milk after it is drawn is much more common than through the udder. Schroeder, of the Bureau of Animal Industry, has shown that cows suffering from tuberculosis to a degree only recognizable by the tuberculin test, frequently pass immense quantities of tubercle bacilli with their feces and that these bacilli retain their virulence for all experimental animals. While the percentage of animals that spread infection in this way is probably small at first, he has shown that as the disease advances the number so distributing tubercle bacilli rapidly increases, so that it is probably true that sooner or later nearly all tuberculous cattle are passing infected feces. This work has recently been confirmed by the British Royal Commission. The accompanying photographs from recent annual reports



of the U. S. Bureau of Animal Industry show well the appearance of cattle passing tubercle bacilli from their bowels, and also show the futility of attempting to diagnose tuberculosis from the physical appearance. These cattle were among the fattest and best looking animals in the herd.

Guinea pigs inoculated with small amounts of fresh feces from tuberculous cattle became affected with typical generalized tuberculosis. Cultures made from the bodies of guinea pigs so infected were found to be pure cultures of tubercle bacilli and such cultures were proven to be virulent for cattle. Hogs fed on the feces of tuberculous cattle very generally contract tuberculosis. This has been proven experimentally a great many times. It is the practice in the corn states to run hogs behind cattle being fattened for market, so that they may pick up the large amount of undigested corn passed by the cattle; in one such case surprise was caused at one of the abattoirs under Federal inspection by receiving a consignment of hogs in which nearly every one showed evidence of recent infection with tuberculosis—investigation showed that the hogs had been run behind a bunch of steers badly infected with the disease.

The fact has been established by the Federal meat inspection service that calves and pigs raised wholly or in part on cow's milk or whey, usually show evidence of tuberculosis on post-mortem.

It has been found that the most common contamination of milk is cow manure. In a recent ex-

periment by the Bureau of Animal Industry, a large number of samples of milk purchased from regular city milk dealers under ordinary market conditions were centrifuged for fifteen minutes at 2000 revolutions per minute. Every sample deposited a sediment and microscopic examination showed 98% to contain fragments of bovine feces. This is sufficiently objectionable but it does not give anything like an adequate idea of the amount of filth which the milk originally contained. The average dairy makes only the slightest attempt at cleanliness and very many make no pretense of being clean at all. The cows are dirty, the milkers are dirty, and the barns are filthy. A large flaring-top pail is used which facilitates the entry into the milk of all sorts of objectionable matters such as feces, hairs, epithelial cells from the skin of the cows, etc., as well as dirt from the hands and clothes of the milker. Much of this dirt is removed in the process of straining, but only the coarser particles are taken out in this way. The finer particles, among which must be included the tubercle bacilli, pass through the spaces of the strainer. The union of the tubercle bacilli with the feces is a very loose one so that the organisms are very readily washed free. In a test by Schroeder, it was found that when guinea pigs were inoculated with normal fresh milk to which small amounts of fresh feces from tuberculous cows had been added, amounts no larger than commonly fall into the pail during ordinary milking, those inoculated after the milk had been strained succumbed to tuberculosis as rapidly as those inoculated with the milk before it was strained.

The frequency with which ordinary market milk is contaminated with tubercle bacilli is shown by Hess, who examined 107 samples taken at random from the New York supply. He found that 17 contained tubercle bacilli, virulent for guinea pigs. He found 16 children who were drinking milk with more or less regularity, obtained from the same sources as his samples. One year later four of these children gave clinical evidence of tuberculosis.

Bang injected apparently normal milk from the sound part of an udder, another part of which was diseased, into the belly wall of two rabbits, which developed inoculation tuberculosis and died after two and one-half and three and one-third months, respectively.

Ernst reports a series of experiments in the *Am. Jour. Med. Sci.*, 1890, as follows:

1. Microscopic examination of cover glass preparations from milk of tuberculous cows without udder tuberculosis. Specimens examined, 114; containing tubercle bacilli, 17; per cent, 14.

2. Inoculations of rabbits with similar milk. Rabbits surviving first few days, 49; rabbits becoming tuberculous, 5; per cent, 10.2. Cows used, 13; cows with milk tuberculous, 3; per cent, 23.

3. Inoculation of guinea pigs with similar milk. Pigs after necessary exclusion, 54; pigs becoming tuberculosis, 12; per cent, 22. Cows used, 14; cows giving tuberculous milk, 6; percentage, 42.8.

4. Feeding calves with similar milk, five out of twelve became tuberculous.

5. Feeding pigs with similar milk, two out of five became tuberculous.

Anderson, of the Public Health and Marine Hospital Service, found that 11% of the dairies examined, supplying milk to Washington, D. C., contained tubercle bacilli virulent for guinea pigs. He states, however, that neither the cream nor the sediment from the milk was used and that if both these parts had been employed the results would have been higher.



Park made a study of a large number of unselected cases from the hospitals of New York, with a view of determining what percentage of cases was due to bovine origin. He based his decision on the cultural characteristics and virulence of the organisms. He divided his cases into three classes, adults, over sixteen years of age, children from five to sixteen and children under five. The two latter classes came principally from the Babies' Hospital and the Foundling Hospital. He found the following to be due to bovine infection:

Diagnosis.	Five to Under		
	Adults.	Sixteen.	Five.
Pulmonary tuberculosis . . . . .	4%	37%	57%
Tuberculosis adenitis, cervical. . . . .	16%	50%	68%
Abdominal tuberculosis . . . . .	3%	40%	26%
Generalized tuberculosis . . . . .	5%	3%	15%
Tubercular meningitis with or without generalized lesions. . . . .			
Tuberculosis of bones and joints . . . . .			

This indicates an alarming state of affairs and shows very clearly the necessity of including the bovine in any scheme of prophylaxis against human tuberculosis.

As you know, when milk stands or is centrifugalized, it separates into three distinct layers—cream, skim milk and sediment. The latter is not always visible in pure, clean milk, but it is there nevertheless; it consists of a white, chalk-like mass and is made up largely of leukocytes and epithelial cells. When tubercle bacilli are present in milk they rapidly disappear from the skim milk and are found in about equal quantities in the cream and the sediment, notwithstanding the difference in specific gravity between the bacilli and the cream. In the



process of separation the cream carries up those bacilli which come in contact with the fat globules. This is true even when a centrifugal machine is used. Those organisms which escape the fat globules are deposited in the sediment. This fact has a direct bearing on the market milk supply. The practice of re-enforcing or standardizing milk is a very common one, where there is a city ordinance requiring milk to contain not less than a certain per cent of butter fat. The city dealer gets two lots of milk, one below the city standard and the other above; he centrifuges the fat milk, adds sufficient cream to the poor milk to bring it up to the standard, and returns the balance of the cream to the original milk. If the poor milk happens to be free from tubercle bacilli and the rich milk infected, we have two lots distributing infection instead of one. From what has been shown, you may conclude that skim milk is relatively free from tubercle bacilli, and in consequence is a reasonably safe beverage; this conclusion is correct, provided the sediment or slime from the separator is not returned to the milk, as is usually done at a creamery. Experiments have proven that separator slime from public creameries practically always contains live tubercle bacilli. When skim milk from these creameries is used for feeding calves and pigs, a majority of these animals develop tuberculosis.

From what has been said about the bacilli being carried up with the cream, it is quite natural to suppose that butter made from such infected cream should contain the organisms. The investigations of a large number of workers have conclusively proven that butter, cheese, oleomargarin and buttermilk may contain live, virulent tubercle bacilli when offered for sale. Mohler, Washburn and Rogers, of the Bureau of Animal Industry, report some experiments in Bulletin 41 of the Hygienic Laboratory of the Public Health and Marine Hospital Service. In this work three samples of butter were used. The first sample was made from milk to which bovine tubercle bacilli was added just before churning. They were obtained from a luxuriantly growing culture on glycerin bouillon. Ten centigrams were removed from the surface of the flask, carefully mixed in a sterilized solution and added to ten gallons of milk. The second sample was made from milk from a cow with tuberculosis of the udder. In this milk tubercle bacilli of extreme virulence were present in great numbers. Both the first and second samples of butter were salted in the usual proportions of one ounce of salt to the pound of butter. The third sample was similar in every respect to the second, except that it was unsalted. These samples of butter were tested on guinea pigs, not only when first made, but also after holding ten days in the ice chest; after holding in cold storage for sixty days and again after being in cold storage one hundred and fifty-three days. The results showed that each of these samples harbored virulent tubercle bacilli throughout the entire storage period, and that at any time they were capable of infecting guinea pigs with tuberculosis, if injected into the peritoneal cavity; and, if the infected butter was fed to the

animals, generalized cases of tuberculosis were still capable of being developed. In these experiments ten guinea pigs were fed upon each butter sample for three consecutive days, and six were inoculated with the same kind of material. Six weeks later they were chloroformed and examined. None of the lots of guinea pigs remained entirely free of tuberculosis, although those animals fed upon the



contaminated butter failed to contract the disease as frequently as those injected. The temperature in the cold storage rooms was below freezing all of the time.

Galtier showed that cheese made from infected milk contained living tubercle bacilli two months and ten days after manufacture, and this regardless of whether the cheese was salted or not.

Oleomargarin may also contain tubercle bacilli. This product is made from beef fat, milk or butter, and a vegetable oil—in this country cotton oil—is generally used. The finely chopped beef fat is heated to 50 C. for one hour and a half. This temperature is not sufficiently high to kill the tubercle bacillus. The bacilli may originate in either the beef fat or the added milk. Morgenroth examined twenty samples of oleomargarin purchased in the open market and found virulent tubercle bacilli in nine of them.

When Koch discovered the tubercle bacillus and identified it as the only cause of tuberculosis, everyone was prepared to accept the theory that tuberculosis of all animals was one and the same disease. In 1895, Theobald Smith reported a difference in morphology and cultural characteristics of tubercle bacilli obtained from different sources. This did not excite any marked interest in the scientific world; bacteriologists, apparently, generally accepted these differences as perfectly normal variations, due to a difference in the host, and not indicating in any way a distinction in species. In 1901, Koch emphasized the importance of these differences, giving to both the human and bovine organisms the dignity of a species. He stated, not that bovine tuberculosis was not communicable to men, but that the amount of tuberculosis in man originating from bovine sources was so small as to be a negligible quantity, not of sufficient importance to warrant any precautions to prevent the infection of man by the

cow or her products. This statement met with vigorous opposition at the time and was the immediate cause of the appointment of both the German Imperial Commission and the British Royal Commission, for the study of human and bovine tuberculosis. It also induced a host of private investigators to work on this problem, so that to-day there is a mass of both official and unofficial literature on the subject.

At the International Congress on Tuberculosis in Washington, D. C., in 1908, Koch reiterated his general statement of 1901, basing his contention on two propositions—first, that eleven-twelfths of the deaths from tuberculosis in the human were due to pulmonary consumption, and that the bovine organism had never been isolated from such lesions; second, that intestinal tuberculosis of the human is of such rare occurrence that it does not indicate any great amount of infectivity in milk. He found himself standing practically alone on the whole proposition in this congress, the other investigators, both official and private, being practically a unit on the danger to man from tuberculous bovine products. It seems to me that none can read carefully the proceedings of this congress, as published in volume four, and fail to be convinced that there is a very real danger to man in consuming raw products from a tuberculous animal. In this connection, I quote from Prof. Woodhead, of the British Royal Commission:

"Let me say that of one thing I am thoroughly convinced, and that is until a clear negative is proved, those who take the risk of giving it out that there is no danger to the community, either directly or indirectly, through an increase of tuberculosis among cattle, and that there is no danger of infection from cattle to man, especially to the human infant, incur very great responsibility indeed. As for myself, I am so satisfied with the nature of the evidence that has already been obtained, not only in England, but in Germany, France and Denmark, not to speak of important investigations carried on in other countries, that I am unwilling to countenance the relaxation of a single regulation for the control of bovine tuberculosis. Indeed I will go further and state my strong conviction that in the interest of hygiene, and with a view to the final stamping out of tuberculosis from the human race, additional and more stringent regulations will undoubtedly have to be drawn up and applied."

This position was practically endorsed by all who took part in the "conference in camera" at the Congress. As to the second contention of Koch, that intestinal tuberculosis is rare in children, Fibiger stated that every sixth or seventh child dying in the hospitals of Kiel, Berlin and Copenhagen has primary intestinal tuberculosis and estimates that one-third of these, or five per cent., are of bovine origin.

Koch at this same congress questioned the mutability of type of tubercle bacilli from different hosts. Mohler and Washburn, of the Bureau of Animal Industry, after a prolonged study of the susceptibility of the tubercle bacilli to modification, conclude: "That the morphology of tubercle bacilli is their most variable characteristic." In their work a tubercle culture isolated from sputum was given a more characteristic human type by passage through cats. The same culture was given a per-

fect so-called bovine morphological character by passing through cattle. A culture isolated from a tuberculous boy was found to be morphologically a bovine type, by passage through cats it became morphologically a human type. A culture isolated from bovine lesions and morphologically a bovine type, became morphologically a human type by growth on solidified human blood serum. It seems reasonable to assume if human blood serum can affect this change in a morphologically bovine type from a bovine source, that the residence of tubercle bacilli from bovine lesions in the human body may likewise cause a change from so-called bovine to so-called human morphology.

The morphological instability of the tubercle bacillus is graphically shown in the plates in the twenty-fifth annual report of the Bureau of Animal Industry.

Plate I shows that it is possible to change tubercle bacilli from the so-called human type, which is long, relatively thin, beaded and occasionally slightly curved, to the so-called bovine type, which is short, thick and not beaded, and vice versa.

Plates II and III show how dissimilar the morphology of tubercle bacilli from different sources may be, and also how the morphology may vary in different individuals of the same species.

The tubercle bacilli shown on these plates were all stained in the same manner with carbol-fuchsin and decolorized with 20% sulphuric acid. They were drawn with a camera lucida and magnified about nine hundred diameters.

This morphological variation of the tubercle bacilli is also asserted by Fibiger and Jensen, who say: "Though bovine types of tubercle bacilli are more commonly isolated from bovine lesions and human types from human lesions, there are cultures that must be considered as transition forms, as they have some of the characteristics of bovine and others of the human type." Gorter concludes that human and bovine bacilli are not different varieties and that the conversion of one type into the other actually occurs.

Tuberculosis is not only the commonest disease of cattle at the present time but is rapidly increasing, not only in individual herds but in the number of herds affected. This is not only true of dairy herds but also of range cattle. While life on the open range probably exerts a deterrent influence on the spread of the disease, it is not sufficient to prevent either the constant increase of tuberculosis on ranges already infected, or the introduction of it to territories previously free.

In view of the fact that tubercle bacilli from bovine sources are much more virulent for all experimental animals than those from human sources, it does not seem wise to expose the human invalid and infant to the danger of infection with bovine tuberculous products. Anderson, of the Public Health and Marine Hospital Service, says: "For myself, I object most strenuously to using milk containing tubercle bacilli virulent for laboratory animals."

It is true that certified milk furnishes a food for infants and others which is free from tuberculosis, but certified milk constitutes only a very small per-



centage of the milk used, and on account of its price must necessarily be limited to the few. The vast majority of our infants and invalids must from necessity depend upon the ordinary market milk for their supply. It is absolutely essential that this grade of milk shall be so handled as to prevent it distributing tuberculosis. Clean milking, frequent inspection, the removal from the dairy herds of clinically tuberculous animals, rapid cooling and early delivery of the milk, are all essential, but none or all of them will make milk from a tuberculous cow, or milk drawn in a tuberculous environment, free from tuberculosis.

There is only one practical method of treating such milk so as to remove the danger of infection, and that is pasteurization under official supervision. Pasteurization should not be considered a "cure all." It should not displace frequent and careful supervision of dairy farms and methods, it should never excuse slovenly practices at the producing end. It cannot make dirty milk clean, nor bad milk good. All it can do is to make a dangerous milk safe.

It is not within your province to devise ways and means of controlling or eradicating bovine tuberculous, that is a problem belonging essentially to the veterinarian. It is up to you, however, to see that milk from cows not proven free from tuberculosis shall be made safe for your patients to use.

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## THE PREVALENCE OF BOVINE TUBERCULOSIS.

By CHESTER L. ROADHOUSE, D. V. M.

The prevalence of tuberculosis in cattle shows a direct relation to the opportunity for infection as is the case with the disease in human beings, and is not due to conditions of climate, latitude, and altitude; consequently we find the disease in all countries of the world where there is activity in the cattle business.

Central Europe, Great Britain, and our eastern states, as well as certain localities in other states, show the highest percentage of this disease. On this continent, Mexico, some of the gulf states, New Mexico, Arizona, Nevada, Wyoming, and some of the northern mountainous counties in California, have shown very low percentage of tuberculosis.

There are other isolated sections in the United States where little or no tuberculosis is found; but it is safe to say that there are comparatively few large dairies in the United States that are entirely free from this disease.

It is said that tuberculosis does not exist on the Island of Guernsey, the original home of the well-

known Guernsey cattle, and this condition is the result of strict supervision to prevent the bringing in of diseased animals.

"The majority of the cattle tested were dairy cattle, and the tests were made under various conditions. By far the larger proportion of the tests were made on cattle that had been within a state for a year or more. In some cases, tests were made compulsory on all cows supplying milk to a city; in other cases, they were made when requested by owners, and in still others, when the presence of tuberculosis was suspected in certain herds. It is impossible to determine accurately the weight of all these factors; but considering the fact that while dairy cattle largely predominate, their average is reduced by a certain proportion of other cattle, and offsetting against this, the fact that the testing of herds under suspicion tends to raise the average somewhat, it seems reasonable to conclude from these tests that probably 10% of the dairy cattle in the country are affected with tuberculosis."

In the United States in 1908, there were 7,116,275 cattle slaughtered under Federal inspection. Of this number, 68,395, or 0.96 per cent., were found affected with tuberculosis. Even a larger proportion of the animals slaughtered at establishments without Federal inspection are tubercular, as one effect of a rigid inspection is to exercise care in buying animals so as to minimize condemnations. Also we must remember that the beef cattle are grown on the ranges very largely and consequently have much less opportunity for contracting the infection that we find so general in dairy animals.

To reach the real point of interest which I believe this subject has for us at this meeting, I have gotten together the available data concerning the prevalence of tuberculosis in dairy cattle in California, as shown by tuberculin tests. The testing has been confined almost exclusively to herds supplying market milk for distribution in cities.

While tuberculosis in animals is less important in the United States than in some other countries, it has progressed to an alarming extent in this country, and is undoubtedly on the increase. It spreads readily among the cattle that come in close contact with each other, as in dairy herds.

The practice of feeding dairy cattle sloppy feed in the stables, and not having each animal in the same stall each time, is a dangerous one if there are badly diseased animals in the herd.

With this data furnished, showing the large percentage of tuberculosis in cattle, we can realize the great importance of the work being done by the Medical Milk Commissions of the United States. A vast amount of credit is due these organizations

for supervising the production of a clean, wholesome and safe milk for the protection of the life and health of the infant, and of all who will use it.

To determine the prevalence of tuberculosis in the United States, we must depend largely upon the data furnished by the United States Department of Agriculture, and by the various state officials connected with veterinary sanitary work. Dr. Melvin, Chief of the Bureau of Animal Industry, reports the results of tuberculin tests in the United States as follows:

**Results of Tuberculin Tests of Cattle in the United States Made by Federal Officers from 1893 to 1908, With the Results of Post Mortem Examination of Such of the Animals As Were Slaughtered.**

States.	No. of Tested.	No. of Reacting.	Percentage Reacting.	No. of Reactors Slaughtered.	No. found Tuberculous on Post Mortem.	Percentage found Tuberculous on Post Mortem.
Arizona	49	16	32.65	16	16	100.
Alabama	20	...	...	...	...	...
California	9,618	1,112	11.56	872	872	100.
Colorado	882	50	6.08	14	13	92.86
Connecticut	6,080	852	14.01	750	748	99.73
Delaware	1	...	...	...	...	...
Dist. of Columbia	8	7	87.50	5	5	100.
Florida	1	...	...	...	...	...
Georgia	49	19	38.78	...	...	...
Idaho	10	...	...	...	...	...
Illinois	7,120	790	11.09	619	597	96.45
Indiana	2,935	246	8.38	129	127	98.45
Iowa	4,020	778	19.35	239	220	92.05
Kansas	120	4	3.33	4	3	75.00
Kentucky	327	37	11.31	13	12	92.31
Maine	3,264	149	4.56	116	109	93.97
Maryland	58	8	13.79	6	6	100.
Massachusetts	86,223	11,853	13.75	10,760	10,688	99.34
Michigan	2,155	351	16.29	97	95	97.94
Minnesota	60,733	3,031	4.99	172	135	78.19
Mississippi	133	9	6.77	...	...	...
Missouri	1,680	132	7.92	4	4	100.
Montana	62	25	40.33	2	1	50.
Nebraska	105	49	46.67	18	18	100.
New Hampshire	164	20	12.18	19	19	100.
New Jersey	3,293	828	25.14	584	579	99.15
New Mexico	196	1	.51	1	1	100.
New York	4,034	565	14.00	533	532	99.81
North Carolina	1,207	208	17.23	43	28	65.12
North Dakota	702	130	18.52	13	13	100.
Ohio	2,933	425	14.49	69	68	98.55
Oklahoma	385	4	1.04	2	2	100.
Oregon	1,466	351	23.94	274	266	97.05
Pennsylvania	90	25	27.77	7	7	100.
Rhode Island	653	125	19.14	104	104	100.
South Carolina	395	40	10.12	1	1	100.
Tennessee	88	7	7.95	...	...	...
Texas	76	...	...	...	...	...
Utah	120	21	17.50	12	12	100.
Vermont	162,570	10,628	6.54	8,248	8,166	99.
Virginia	899	158	17.58	101	98	97.03
Washington	2,779	455	16.37	10	8	80.
West Virginia	60	13	21.67	12	12	100.
Wisconsin	32,297	3,477	10.77	915	802	87.65
Wyoming	2	...	...	...	...	...
Total	400,008	37,000	9.25	24,784	24,837	98.39

#### California Tuberculin Tests.

Location.	No. Animals tested.	No. Reacting.	Percentage Reacting.
Palo Alto	313	93	29.7
Berkeley	353	93	26.3
Petaluma	79	7	8.8
Withheld	196	110	56.1
Lakeville	10	...	...
Walnut Creek	108	13	12.5
Knight's Landing	61	15	24.5
San Mateo	69	55	79.9
San Luis Obispo	8	...	...
Dixon	268	68	21.6
Etna Mills	53	...	...
Red Bluff	18	...	...
Redwood City	124	90	72.5
San Francisco	23	18	78.2
Pasadena	1287	96	7.4

Calif. cattle tested by U. S. Dept. of Agriculture for

Export	476	101	21.2
Stockton	98	60	61.2
Ukiah	63	42	66.6
Agnews	67	58	86.5
Napa	154	4	2.6
Hopland	26	1	3.8
Galt	12	...	...
Miscellaneous tests	54	16	29.6
Total	2920	930	31.8

#### PROCEEDINGS OF THE SAN FRANCISCO COUNTY MEDICAL SOCIETY.

Combined Meeting of Medical and Surgical Sections, Thursday, July 6th, 1911.

I—Address by Dr. Geo. W. Crile, Cleveland, Ohio.

II—Address by Dr. Harvey W. Cushing, Baltimore, Md.

Eye, Ear, Nose and Throat Section, Tuesday, July 25th, 1911.

I—Presentation of Cases. Harrington B. Graham. Discussed by Drs. McClenahan, Lucchetti, Blake, Welty.

II—Case Report. V. F. Lucchetti.

III—Report of Recent Italian Eye Literature. V. F. Lucchetti. Discussed by Drs. Horn, Lucchetti, Frederick.

IV—Report of Case. Cullen F. Welty.

#### SOCIETY REPORTS

##### CALIFORNIA ACADEMY OF MEDICINE.

The California Academy of Medicine held its regular meeting on Monday evening, July 24th, in the library of the County Medical Society. The scientific program was as follows:

I—Elements of Error in Statistics. Dr. W. S. Thorne. Discussed by Drs. Ophuls, Terry and Thorne.

II—A Case Report. Major P. M. Ashburn, U. S. Army. Discussed by Dr. Morrow.

III—Illustration of Leprosy Cases. Dr. Howard Morrow.

Refreshments were served at the close of the program.

##### SHASTA COUNTY.

The Shasta County Medical Society met at the Dunsmuir Hospital, Dunsmuir, Cal., July 15, 1911.

There were present the following: Drs. R. T. Legge, president; E. J. Cornish, A. A. Milliken, L. J. E. Gougnet, C. A. Mueller, F. J. McNulty, J. P. Sandholdt, Charles Pius, J. T. Affleck and B. F. Saylor. Dr. J. A. Black and Dr. W. P. Willard of San Francisco were guests of the Society.

The morning was taken up with clinical cases.

Dr. W. P. Willard of San Francisco demonstrated the use of the cystoscope for diagnosis of bladder conditions and urethral catheterization in two cases of chronic cystitis.

Dr. R. T. Legge, of McCloud, administered a dose of Salvarsan as an illustration of his paper on "A Simple Technique for the Intravenous Administration of 605 With Indications and Contra-Indications."

Dr. L. J. E. Gougnet of Sisson, exhibited a case of conjunctivitis with plastic deposit occurring in a young girl who has had for several years a recurring pustular skin disease.

At noon the society repaired to the home of Dr. E. J. Cornish where a sumptuous luncheon had been prepared by Mrs. Cornish.

After a siesta the scientific program was taken up. Dr. J. A. Black of San Francisco gave a masterly dissertation on "Tonsils; with exhibition of specimens. Dr. W. P. Willard of San Francisco read a succinct and instructive paper on "prostatitis."



Dr. C. W. Nutting of Etna Mills spoke on "The Treatment of Fractures about the Elbow without Passive Movement." Dr. Chas. Pius of Montague read a paper on "Arterio-Sclerosis in Relation to Epigastric Pain," which was well supported by case histories. Dr. E. J. Cornish's paper on "Septic Tanks" was read by title.

All papers were discussed by appointed leaders. An automobile trip up the canyon led to Shasta Springs where a banquet had been spread by Dr. Legge. From here the members dispersed by autos and train in all directions.

B. S. SAYLOR, Secretary.

## BOOK REVIEWS

**Diagnostic and Therapeutic Technic.** By Albert S. Morrow, M. D., Adjunct Professor of Surgery, New York Polyclinic. Octavo of 850 pages, with 815 original line drawings. Philadelphia and London: W. B. Saunders Company, 1911. Cloth, \$5.00 net.

The author has given us, to quote from his preface, a handy compilation of the "every-day practical procedures which the hospital interne or the general practitioner may at any time be called upon to perform." Dr. Morrow lays no claim to originality, the aim of the book being to put into convenient, available form directions for acquiring clinical data by mechanical methods (puncture, aspiration, sphygmomanometry, rhinoscopy, cystoscopy, etc.) and for applying the common special therapeutic procedures (transfusion, infusion, Bier's hyperaemia, lavage, gavage, etc.); and this he has accomplished. S. H.

**"Eye, Ear, Nose and Throat."** Edited by C. A. Wood, C. M., M. D., D. C. S.; A. H. Andrews, M. D.; G. P. Head, M. D. Practical Medicine Series, 1911, Vol. III.; Published by Year Book Publishing Co., Chicago, 1911.

This book reviews in a clear and concise manner the year's progress in the field of eye, ear, nose and throat work. Almost half of the book is devoted to the eye. Among the subjects to which considerable space is devoted is the controversy over the Smith cataract operation, the Smith and Kilkelly letters being given in full.

Under Ophthalmic Therapeutics, salvarsan in its relation to the eye is treated rather meagerly; but in view of its unsettled therapeutic status, this is perhaps excusable. At the present time there is less fear of deleterious results from the drug in diseases of the optic nerve. In fact, many of our prominent clinicians consider salvarsan as indicated in optic neuritis and optic atrophy.

In the experience of the reviewer with several cases of optic atrophy where salvarsan was administered, in no instance was the condition made worse, while in one case a distinct improvement in vision resulted.

The sections devoted to the ear, nose and throat deal with these subjects in a very satisfactory manner.

It is with considerable satisfaction that one notices the interest taken by the profession in the vaccine treatment of eye, ear, nose and throat infections. Sufficient reports have already been gathered to place this form of therapy on a recognized basis.

On the whole the volume is very satisfactory and it is indeed fortunate for the busy practitioner to have such easy access to the literature of his specialty. A. S. G.

**"What to Eat and Why."** By G. Carroll Smith, M. D. Published by W. B. Saunders Co., Philadelphia, 1911.

This book presents in an eminently practical and available form the reasons for and the methods by which a suitable diet may be given to patients suffering from diseases of metabolism and also to those suffering from pulmonary, gastro-intestinal, renal, nervous, circulatory and other diseases.

While the analytical chemistry of metabolism is indicated rather than discussed, sufficient attention has been given to the laboratory investigation of food stuffs to raise the book from the purely empirical, though its general tone is intimate and practical; thus affording the reader a very well balanced combination of practice and theory. As a manual of rational dietetic therapy it will prove valuable.

Two features of interest are: the attention given to the importance of the psychic element in diet and metabolism and the very complete and varied food-lists appended to each subdivision of the text. The table of food stuffs with their carbohydrate, fat, protein, water and caloric values are very complete and easily made use of. In fact, the whole book seems to be written so as to comprise a thorough scientific basis, modified, tested and made available by practical experience, for the use of the practitioner who wishes to add dietetics to his therapeutic armament. G. H. T.

**Plastic and Cosmetic Surgery.** By Frederick Strange Kelle, M. D.; D. Appleton & Co. 1911.

This book of 511 pages is a hurriedly thrown together compendium of many of the type operations employed in cosmetic surgery. Except for some of the author's remarks on hydrocarbon protheses, it contains no message; and in the operative procedures it fails to bring us up to date. The question of free transplantation of tissues, though still in its infancy, deserves more attention than is given to it by the author.

The book is padded with seventy-five pages of useless description of operating room arrangement and equipment, and of the commonest surgical instruments.

The English is careless and the Latin impossible, e. g. "post-operatio."

The print is large and clear, the margins broad and the paper heavy—all factors making for an increase in price. It is this type of book which will undoubtedly drive the profession into the publishing business. S. H.

**"Practical Cystoscopy and the Diagnosis of Surgical Diseases of the Kidneys and Urinary Bladder."** By Paul M. Pilcher. W. B. Saunders & Co. 1911.

Among the many more or less noteworthy and exhaustive works on the diagnosis and treatment of pathological conditions of the genito-urinary tract,

which, of late years, have appeared in brief succession in this country, Pilcher's book deserves a prominent place and a wide circulation. The author aims, as the title of his book indicates, to present the practical side of cystoscopy, and desires to show the real value to be derived from this method in daily practice and particularly its relation to the various affections of the urinary tract. It must be admitted that the author has fully attained his objective in view.

Modern urology, which dates from the time of the arrival of the cystoscope, gained ground but slowly in this country, a rather anomalous state of affairs with a proverbially progressive people, and it is due to the untiring work and scientific spirit of such men like Pilcher that indifference, ridicule and scepticism have, of late, been replaced by the steadily growing recognition of cystoscopy as a diagnostic method of definite value.

The book contains an historical review and comprehensive description of the different types of cystoscopes from Nitze's first examining to Otis' latest type and, in this connection, it is really gratifying to note the many original and useful modifications in the construction of the modern cystoscope that have been devised on American soil. The author's views upon the scope and the indications of direct and indirect, of water-and-air-cystoscopy, give ample proof of his wide personal experience and sound judgment. He justly condemns the so-called composite or combination cystoscope as "confusing, not technically perfect and easily getting out of order." Ureteral catheterization by means of Kelly's endoscopic tube is criticized as being "a very difficult procedure to the majority of operators." The use of segregators is considered an uncertain procedure which has a "very limited field of usefulness." Infection of ureters by catheterization is more of an apparent than real danger and "those who are loudest in their condemnation of ureter catheterization are the ones who are most ignorant of its real value." Such and similar quotations as "Cystoscopy is a more accurate method than exploratory operation" or "The source of Haematuria cannot be recognized without the cystoscope" characterize the spirit in which the book is written; it conveys to the reader the author's personal experience upon all mooted questions and its style is clear and precise. The classification of the whole subject is original with the author and quite comprehensive. The chapter dealing with the care and sterilization of cystoscopes is unusually practical and should be carefully studied by every cystoscopist. The chapters upon Haematuria and especially those on tuberculosis of the genito-urinary organs are particularly valuable on account of the stress laid upon the cystoscopic differential diagnosis and on account of the description of important personal cystoscopic observations. The author recommends early nephrectomy for renal tuberculosis and does not discuss expectant therapy.

While the author's views upon the value of the various tests for determining renal function are open to discussion, nevertheless, his statements are decidedly conservative; he always tries to give an impartial view of the methods employed by the majority of reliable authorities and describes in detail even such tests (like cryoscopy) which in his hands have not proved of practical value. The chapter on therapeutic uses of the cystoscope contains in concise form everything noteworthy and of practical value. Of operative uses of the cystoscope only those methods are briefly described which have seemed to the author practical and safe.

It is impossible to give in a short review an approximate idea of the wealth of information and instruction which can be extracted from the perusal of Pilcher's book. The publishers have endeavored to make it attractive by good print and a large amount of excellent illustrations, features which added to the intrinsic value of the text will certainly increase the usefulness of the book to the general practitioner as well as to the specialist. M. K.

## A CLOSED INCIDENT.

To the Editor of the State Journal of Medicine:

Dear Sir:—I am in receipt of your letter of July 6th, calling my attention to an article which appeared on page 304 of the State Journal for July, 1911, which article referred to myself.

This is the second article bearing on the same subject which has appeared in the Journal, to the first of which I sent a reply which you kindly published in the paper. This reply brought forth the second article over the same signature—the one to which you have called my attention.

In regard to the charges contained therein, I must refer any who are interested back to my reply to the first article which I wish to stand as a plain statement of the facts as far as my connection with the case referred to in the article is concerned, notwithstanding published excerpts from the testimony, such excerpts having been taken at random and utterly lacking in coherence. In one instance, however, the use of the word "again"—"I examined her again," makes it clear that a previous examination had taken place, thus breaking down the very bulwark of the contention that no examination had been made until after the operation had been performed.

To take up separately the charges contained in this last article, the tone of which, in decency, debars it from the very name of discussion, is not my intention, but some of the statements cannot remain unnoticed.

That referring to "A grave breach of medical ethics and decency committed by examining a woman, not for the purpose of diagnosis and treatment, but in order to be able to go on the witness stand and give evidence against defendant."

The one in which the statement is made, "To any one who has any knowledge of the ways in which expert testimony is received, it is clear, that a lawyer will not risk to put a witness on the stand, before he has gone over the subject with the would-be expert, a sort of rehearsal goes on; plaintiff's shrewd lawyer did not waste his visits . . . to ask about facts; he made sure that Dr. von Hoffmann was willing to answer the theoretical questions in such a way as he needed them."

Both of these statements are obviously vituperative and lacking in stability, having no other foundation than that of personal opinion.

In the statement that "The San Francisco County Medical Society stands for professional decency," I most heartily concur, though unfortunately for his own dignity as a member of this body, the fact has been over late in coming home to the author of these malicious articles.

Respectfully,

DR. C. VON HOFFMANN.

San Francisco, July 15th, 1911.

## NEW MEMBERS.

Detling, Frank E., Los Angeles.  
 Collier, G. J., Los Angeles.  
 Bradley, E. R., Los Angeles.  
 Ransom, D. H., Madera.  
 Cox, J. E., Coalinga.  
 Mitchell, F. W., Bakersfield.  
 Key, J. W., Taft.  
 Elliott, A. J., San Diego.  
 Wegefarrth, H. M., San Diego.  
 Fly, R. J., San Diego.

## DEATHS.

Mills, John M., Arcata.  
 Maupin, J. T., Fresno.  
 Rich, Clayton L., Fullerton.  
 Michel, W. M., Ferndale.  
 Karaki, Yasuzo, Sacramento.  
 Wing, P. R., Arroyo Grande, Cal.  
 Trask, Henry C., Cloverdale.  
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# California State Journal of Medicine.

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PHILIP MILLS JONES, M. D., Secretary and Editor

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Notify the office promptly of any change of address, in order that mailing list and addresses in the Register may be corrected.

VOL. IX OCTOBER, 1911. No. 10

## EDITORIAL NOTES.

According to a recent publication of the United States Public Health and Marine Hospital Service, smallpox is and has been for the past few years quite prevalent throughout the United States. While the disease is of a mild type, and the mortality with few exceptions low, still it behooves us in California in general, and San Francisco in particular, to be constantly on our guard, and to in every way co-operate with the local and state Boards of Health in their endeavors to eradicate the disease.

During the year 1909 over 24,000 cases were reported in the United States, with a mortality ranging from .10% to .50% in most localities up to as high as 20% in Norfolk, Va., and even higher in a small epidemic in South Carolina. The figures for the state of California are incomplete, but the records of the San Francisco Isolation Hospital show that since 1900 an annual average of 124 cases have been treated, with a mortality of less than one-quarter of one per cent. for the past four years.

The reasons for calling attention at this time to a disease which seems for the time being at least to have lost its virulence are as follows: It is recognized that the severity of certain acute infectious diseases varies from year to year, running as it were in cycles. While at the present time we are experiencing an epidemic of smallpox accompanied by

a phenomenally low death rate, there is no reason why this may not at any time be greatly increased and the disease return to its former severity. Again, the last state legislature enacted a law making vaccination of school children no longer compulsory, a measure which may have appeared at the time expedient for political or other reasons, but which can have but one ultimate effect on the resistance of many of the coming generation. Finally, varicella is always present in the community and, with its frequently striking resemblance to variola and the difficulty at times of differentiating between the two, except by one of special training, mistakes are liable to and do occur not infrequently.

San Francisco physicians should report immediately to the city Board of Health all cases of varicella coming under their notice. This is necessary both to guard against the possibility of it being a mild case of variola, and, of almost as great importance, so that it and all contacts may be excluded from the public schools. As chicken-pox in itself is considered of so little importance, many of our local medical men have not been as careful as they should be in reporting the disease. As a result, much valuable time is annually lost to school children through acquiring the disease in the school room. In this connection it might be well to state that physicians occasionally do not report chicken-pox out of deference to the wishes of the parents, and the fear on their part that the house may be placarded, quarantined or disinfected. None of these things are done; the case is seen once by a diagnostician of the Board of Health; the patient and all contacts excluded from school for a period of three weeks from the onset of the rash, and the parents instructed to keep their children apart from those of their neighbors.

The very thorough system of school and other inspection perfected by the Board of Health is daily bringing to light cases of neglect on the part of the family physician. As an example of this, within the past two weeks it has been necessary to in one day exclude the children of fourteen families from school, each case being directly traceable to class room contact with such a case which had been seen but not reported by a physician. Such negligence, though, is becoming more and more the exception.

L. D. M.

When Bier in 1899 published his new method of anesthesia by the sub-arachnoid injection of cocaine, it immediately took the fancy of the profession, appealing to them with the force of the long awaited at last discovered safe substitute for the dangerous general anesthetics, chloroform and ether. In spite of the warn-

JONNESCO  
AND SPINAL  
ANESTHESIA.

ing of Bier to go slow and be careful, the new method spread over the world with a wave of enthusiasm. Then the inevitable reaction set in, for the cocain was too toxic and the spinal method gave a far higher mortality than chloroform. Then began the search for substitutes, and in rapid succession were tried A eucain, B eucain, novocain, tropacocain, alypin, stovain. Of these, only tropacocain and stovain have survived, the former being preferred by Bier on account of its greater safety, the latter by many other operators on account of its deeper anesthetizing and greater muscle relaxing power. In fact, it is this very power of paralyzing the motor nerves that constitutes its greatest virtue and at the same time its greatest danger, giving perfect relaxation of sphincter in anal operations, so that dilatation is unnecessary, likewise relaxing the abdominal muscles for laparotomies and the muscles of the lower limbs for adjustment of fracture, etc., but unfortunately also liable to give us a paralysis of the phrenic nerve if the patient's head is incautiously lowered. It is this potential danger that causes the fear of this drug in many minds. The introduction of these two drugs saved spinal anesthesia from oblivion, and with the perfection of technic the method was finding its level as one of the several methods of anesthesia to be applied in appropriate and selected cases, when suddenly Jonnesco burst on the scene like a hurricane, and, after a whirlwind campaign, chiefly in the newspapers, departed for the land of his birth, leaving behind him a path of desolation for the future of spinal anesthesia. He claimed to have revolutionized sp. stovanization and to have robbed it of all its dangers by the simple addition of strychnin, so that he not only injected into the lumbar spine but even into the high dorsal spine with perfect impunity to the patient, getting perfect anesthetics all the time and absolutely no evil results; nay, that for the past two years he has not used a general anesthetic at all. Although his claims seemed preposterous and more like the vauntings of a charlatan than a man of science, still he was given a fair hearing and an opportunity to demonstrate his method. What was the result? In this country, "of seven high spinal analgesias four resulted unfavorably, one patient being constantly delirious on the table and afterward at intervals for twelve hours, also requiring 12 min. artificial respiration to restore this function after a 12-min. operation (osteoma of forehead). Second case, superficial chest operation, no anesthesia, required chloroform. Third case, did not succeed in drawing off spinal fluid, ether given. Fourth case, amputation of breast, patient nearly died, later ether had to be given. Furthermore, one death and one partial paralysis in Philadelphia following method by imitators of Jonnesco." (John J. Moorehead, *Journal A. M. A.*, January 22, 1910.) And this by the man who later claimed before the French Surgical Congress in Paris, October 3, 1910, that he had personally given 1005 injections, of which 238 were high punctures, and had had no deaths or even severe accompanying symptoms. In the discussion, adverse criticism of his methods did not seem to diminish Jonnesco's enthusiasm in the least. The

affair seems to have taken the same course in England as in the United States. In the *British Medical Journal*, April 2, 1910, G. A. H. Barton writes, under *Dangers of Spinal Anesthesia*, 'Voyez comme il sourit en regardant ses intestins.' This was the burden of Professor Jonnesco's song at the Royal Society of Medicine, and beyond photographs depicting this happy state of affairs and his own assurance that this method was perfectly safe, he presented no convincing evidence that it was in any way superior either to general anesthesia or to the method evolved in this country by Mr. Barker. (Stovain in 5% glucose solution.—A. N.) However, in spite of this, and in spite of the indifferent results he obtained at the Seamen's Hospital (only one completely satisfactory anesthesia in three cases) the method was acclaimed by a section of the profession and eulogized by the lay press, the public being beguiled into a belief of its absolute safety. . . . And now we find the patient does not always regard his intestines with a smile. All honor to Messrs. Milward and Gabbett for publishing their fatalities, etc." The two fatalities referred to were published, one by Milward in *British Medical Journal*, March 26, 1910; the other by Gabbett, *British Medical Journal*, March 29, 1910. The latter writes: "In the *British Medical Journal* for November 13, 1909, I read the following statement by Professor Jonnesco: 'General spinal anesthesia is absolutely safe, it has never caused death nor any important complications.' He then proceeds to report a death under novocain-strychnin anesthesia during operation for elephantiasis scroti. Puncture was between twelfth dorsal and first lumbar vertebrae. He thinks the strychnin caused death, as there was spasm of the arms and chest before exitus. Had used novocain alone in many cases previously without accident. Milward's case was one of bowel obstruction in which he used stovain and strychnin, patient showing alarming symptoms in six minutes and dying in twelve minutes. Autopsy showed lungs clear of vomited material. Before coming to England Jonnesco had brought his method up before the German Surgical Society in Berlin, when 'Bier declared that the method must be rejected, and Rehn of Frankfort stated that animal experiments showed considerable danger in injections above the lumbar region. In explanation of this hostility Jonnesco says that as he expected the method would be considered too novel and too hard to be accepted without opposition, predicting, however, that in a short time his method of general spinal anesthesia would be generally accepted.'" (Moorehead.)

Now, what shall we think of a man who in the face of these facts persists in declaring and advertising—no patent medicine exploiter ever made more clever use of the lay press than Jonnesco did—his method of general spinal anesthesia as free from all danger whatsoever? Does he deliberately deceive, or is he a fanatic who cannot see any wrong in his method? Let us charitably consider him a blind fanatic, who may have meant well but whose advent has done more to damage the cause of spinal anesthesia than any event that heretofore has happened.

A. N.



In another part of this JOURNAL we publish the very excellent set of record blanks devised by Dr.

# THE EXCEPTIONAL CHILD.

Grossmann for investigating the physical and mental potentialities of children. Dr.

Grossmann in an address to

the San Francisco County Medical Society made evident the great importance of a better understanding of child development, and claimed that 25% of our children depart from the normal. The figure may at first sight appear excessive, but a little consideration will show that the progress of the race under present conditions, at the existing rate of change, must inevitably be accompanied by increasing abnormality in the young. It is to be remembered that it is a salutary biological law that animals or plants subjected to rapid and profound change of environment, respond by increased variation in the offspring. Notwithstanding the doctrine of the fixity of the germ plasm that now holds sway, the fact must be allowed that the racial intermixture following facility of travel, the profound changes in the relation of physical to mental work, and the many nutritional changes that accompany the increasing substitution of urban for rural life, cannot be without indirect influence on the germ cells, resulting in increased variation. In fact, such variation is a prerequisite for progress. Without variants permitting of higher cultivation, whose capacities can be transmitted, we could have little hope of increasing or even maintaining the present advance. The fundamental importance of this fact is little appreciated by the profession and not at all by the public. Civilization means variation, but variation occurs in all directions. Some of the variants, probably the smaller number, possess an increased potentiality—they have the capacity to do more or better than their forebears. Others are reversions to a more primitive type. The greater number are neither atavistic nor progressive, but simply unbalanced, exhibiting plus and minus capacities in the same individual. If we were applying the nomenclature of pathology to these groups, we might designate them as hyper-hypo and para-potential. As Dr. Grossmann well pointed out, to the legislator and most educators all these variant children are thought of and generally treated as alike. To our fathers they were simply unusual children, to be duly licked back to the normal. While to-day the stick has disappeared, the purpose has remained unchanged, we still strive to shape them back to the average. But obviously such effort is either futile or wrong. The hypo-potential are hopeless and a danger to the race—a more enlightened age will deal with them in ways that it is useless to discuss at present. The hyper-potential should be society's darlings, for with them lies the future. At present a few ultimately so become, the majority never realize or have a chance of realizing their potentialities. The para-potential

are a mighty problem. Contributing a very serious proportion of the growing population, with capacities unevenly distributed, they are the source of the sentimental criminal, the clever fool and the whole realm of paradoxical humanity. To make these one-sided, unbalanced children fit, as men and women, into the framework of society, so that they and their environment both benefit, is of social problems one of the most important. Let us remember that it is from the activities of this class that most of the discords of social life arise. In family life, as in social activities, it is the unbalanced mind that breeds unhappiness and strife. The greatest educational problem of to-day is to devise means of recognizing the abnormal in the growing child, and then so train him that the variant qualities having social value be developed and harmful qualities brought within control. In the attainment of this ideal to which Dr. Grossmann has so long and earnestly worked the first step is a correct diagnosis of the individual child. Believing that the tables drawn up by Dr. Grossmann are a valuable aid to such diagnosis, we have reprinted them for the benefit of our readers.

H. D'ARCY POWER.

In the performance of our ordinary surgical operations the possible sources of contamination are the hands of the surgeon, the **DISINFECTION OF THE SKIN.** materials used (instruments, ligatures and sutures, dressings, etc.) and the skin of the patient.

By the employment of reasonable care, rubber gloves, gowns and masks, and the usual methods in vogue for the sterilization of our instruments, ligatures and dressings, the surgeon and his materials are rendered reasonably safe. The skin of the patient alone remains.

The carbolic spray of Lister and the solution of the same substance rapidly gave way to bichlorid of mercury, at whose shrine we have worshiped for the past two decades, knowing, however, that it did not fulfil the conditions required: inhibition of bacterial growth, penetration into the skin, harmlessness to the patient.

In 1908 Grossisch (Zentralblatt f. Chir. 1908, No. 44, p. 1289) announced that simple painting of the skin with tincture of iodine *without previous preparation whatsoever* fulfilled all our conditions. His method was rapidly adopted for trial with almost universal approbation. Numerous cases, however, were reported of severe eczemas, especially in patients upon which closed dressings such as plaster of Paris casts were used. It was found that this objection could be obviated by the use of freshly prepared tincture of iodine, as in the older preparations there is present hydriodic acid, a substance extremely irritating to the skin; and at the conclusion of the operation washing the superfluous tincture of iodine away with alcohol or thiosulphate of soda.

Numerous experiments, which have been carefully reviewed by Lenormant (Presse Medicale 1911, No. 38, p. 391), seem to indicate fairly con-

clusively that the iodine penetrates the epidermis and is found in the superficial layers of the derma, this penetration being much less marked when the skin has been previously moistened by the application of water. Seelig and Gould (Surg. Gyn. & Obstet. 1911, vol. 12, p. 262), in a most ingeniously devised series of experiments, using a flap of living skin of the rabbit's abdomen, confirm the opinion of Grossisch. They were able to show that the tincture of iodine penetrates more rapidly than alcohol in direct proportion to the iodine content, and that the higher strength alcohols were more efficient than those of lower strength.

All experimenters agree that the iodine exerts but an inhibitive action upon bacterial life, cultures invariably being positive after the removal of the iodine with thiosulphate of soda.

In the Congress of the German Surgical Society of this year (Zentralblatt f. Chir. 1911, No. 29, supp. p. 1, et seq.) Küttner, who interviewed 187 surgeons, reports that those using the method without previous preparation of the patient, are universally in favor of the method. Of 113 operators who used tincture of iodine after first scrubbing the patient with other substances, 78% report cases of eczema; of 74 operators who used tincture of iodine with no previous preparation of the patient, but 8% complained of having had cases of eczema. Küttner sums up the advantages of the method as follows: The procedure is (1) without special preparation available even under unfavorable external conditions, (2) can be carried on in a few seconds, (3) is effective in a few minutes, (4) can be used in every variety of wound and operation, (5) its efficiency is absolutely sure, (6) the technic is so simple that even unschooled and but superficially instructed personnel may be trusted to carry it out, (7) it is humane. He further states that in his opinion it is the only method of disinfection of the operative field.

The technic is as follows: if the patient be in hospital the evening before the operation he may have a full bath without special attention being paid to the operative field. The field is shaved (soap and water) but no local dressings are applied. On the day of the operation, after narcosis has been commenced, the field of operation is painted with freshly prepared 5% tincture of iodine (half strength U. S. P. is effective). Immediately before the beginning of the operation the field is again painted with the same solution. For emergency operations dry shaving, painting of the field with 5% tincture of iodine, *without any sort of previous preparation*.

Although nearly all observers are lavish in their praises of the method, here and there we meet with the opinion of men perfectly competent to judge in these matters who believe they have proved the method to be totally inefficient. Tinker and Prince (Surg. Gyn. & Obstet. 1911, vol. 12, p. 530) detail a series of experiments upon human skin infected with bacillus subtilis in which the tincture of iodine according to the method of Grossisch was inert.

Although, no doubt, good results are obtained by any of the current methods now in vogue, the Grossisch technic is the method par excellence for

the field, the mine and the lumber camp, and bids fair to replace the long and tedious methods heretofore employed, their efficiency being proportioned to the care with which they are carried out.

S. H.

Medicine is making great strides and every year finds new methods of diagnostic precision. It is becoming imperative and more necessary for the general practitioner to have a reasonable working knowledge of these newer methods and to be conversant with the instruments. While he cannot hope to become expert in the use of those procedures used only in a limited number of cases he should perfect himself in utilizing appliances that will be found helpful daily.

#### OPHTHALMOSCOPY IN MEDICINE.

It is now sixty years since Helmholtz invented the ophthalmoscope and what a small minority of medical men can examine the ocular fundus. Its use is practically confined to a few diagnosticians, neurologists and men specializing in ophthalmology. This positively spells of medievalism and is no credit to the profession. Think of it gentlemen, sixty years since a most useful and very inexpensive instrument has been perfected and but a minority of you make use of it.

Within the past decade the electric ophthalmoscope has been made practicable, so much so, that one can learn to see the fundus with little practice and carefully study the interior of the eyeball. Nowhere else in the system can one see blood coursing through the vessels, both arteries and veins, examine their coats and have under inspection a nerve trunk coming directly from the cranium, a piece of the brain, as it were, pushed under your eye.

A five per cent. solution of euphthalmine instilled once or twice into the eye will cause a dilation of the pupil, furthering the ease of examination, without the fear of raising the tension and causing glaucoma.

Other mydriatics should not be used before the fundus has been examined as they raise tension and occasionally may be followed by an attack of acute glaucoma.

Numerous diseases of the central nervous system produce changes within the eye and often a beginning optic nerve atrophy is the first sign of incipient spinal sclerosis. The circulatory system also shows here with hyperaemias, anaemias, hemorrhages and changes within the walls of the vessels, etc. Diabetes and nephritis are often first suspected after using the ophthalmoscope.

Syphilis, either when inherited or acquired at times manifests itself here as does miliary tuberculosis.

To epitomize: The ophthalmoscope is now a handy, inexpensive, simple and useful instrument which should be used as a measure of routine examination in internal medicine and the general practitioner has not fully protected his patient if not utilizing this simple and useful aid in diagnosis.

W. S. F.



## ORIGINAL ARTICLES

## ABNORMAL BODY TEMPERATURES IN INJURIES OF THE CERVICAL SPINAL CORD.\*

By RAY LYMAN WILBUR, M. D., San Francisco.

The essential clinical features of the case which gave rise to this paper were a sudden, complete and unvarying paralysis and anaesthesia of all parts of the body supplied from below the level of the 4th cervical cord segment, diaphragmatic respiration, absence of the sphincter and all other body and limb reflexes except the plantar, which was at times exaggerated, transient priapism, and high temperature with slow pulse rate, all the result of a fracture dislocation in the cervical region (see paper of Dr. T. M. Williams, *Journal A. M. A.*, July 22, 1911, p. 283, for full case report). In other words, by an unfortunate accident, there was duplicated upon a healthy young man the conditions brought about upon large dogs by Naunyn and Quincke<sup>1</sup> in their study of the effects of crushing injuries of the cervical cord upon variations in body temperature. The bedside record (see illustration) shows that subsequent to an initial subnormal temperature there developed a well marked hyperpyrexia which was apparently independent of external temperature, marked vasomotor disturbance, sweating, ingestion of food, and infection; was not accompanied by an increased heart rate, but was associated with rapid diaphragmatic pulmonary ventilation. Here there are presented a series of interesting physiological and clinical problems. What has suddenly destroyed that fine balance of chemical and mechanical factors concerned in the maintenance of a uniform body temperature? Is the subnormal temperature due to decreased heat production or to increased heat loss? Is the hyperpyrexia from increased heat production or diminished heat loss? If more heat is produced, can it come from the flaccid muscles or is it from the liver and alimentary tract? Is it possible that there are trophic or heat nerves associated with the muscles independent of the motor nerves? Is there an inhibitory heat center in the cervical cord or are there inhibitory fibres passing through it that are destroyed by such a lesion? Is this hyperpyrexia to be distinguished from fever due to infection? Is the whole effect produced merely that resulting from vasomotor disturbance? Clinically it is important to answer these questions. Does the occurrence of persistent subnormal or high temperature after a cord injury mean a complete transverse lesion?

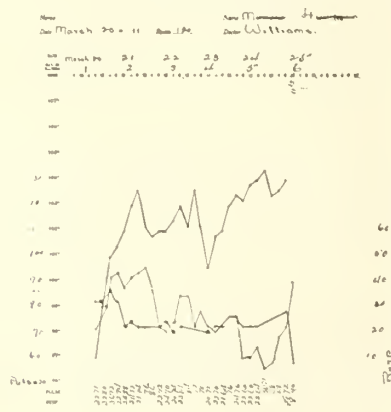
Can one differentiate by physical or other findings such a variation in temperature from one due to infection? Do such cases throw any light on the possibility of the occurrence of purely nervous or hysterical fevers?

Before attempting to answer some of the questions by a brief review of the great and conflicting experimental and clinical literature it might be well to call to mind that heat is produced largely by the muscles, heart, glands, intestine and liver, that according to Vierordt it is lost by warming the urine and feces (1.8%), and the expired air (3.5%), by evaporation from the lungs (7.2%) and from the skin (14.5%) and by radiation and conduction (73%) and that its regulation depends upon a careful balance of the heat produced and that lost and that the vasomotor mechanism plays an important and evident part in this control. It is also important to remember in interpreting the results of animal experimentation that the larger an animal is the greater the ratio of its volume to its surface so that a small animal has greater surface in relation to its volume, and must have proportionally more rapid metabolism and more food to keep up the same body temperature. The various types of calorimeters, the different kinds and sizes of animals experimented upon, the seasons of the year, etc., have all added factors of uncertainty to much of the work done.

Fever and heat regulation are such striking phenomena that they have attracted many scientific minds to work towards their explanation, and throughout much of the work that has been done the question of their relation to the nervous system has been ever prominent, particularly the relation of the upper cervical cord and the medulla to subnormal and elevated temperatures. As far back as 1836 Brodie<sup>2</sup> reported a clinical case of a crush of the cord at the level of the 5th and 6th cervical vertebrae, in which there was slow and irregular diaphragmatic breathing, weak pulse, livid countenance and prompt death with a previous temperature of 111° F. Previously in 1812<sup>3</sup> he had studied the effect of urare, which paralyzes the muscle end-plates, upon temperature and the respiratory exchange, and found that less heat was generated by animals poisoned with it. In discussing his clinical case he refers to Chossat's investigations (1822) showing that division of the superior portion of the spinal cord produced remarkable elevations of animal heat. Bernard, Schiff, Bezold, Tscheschichin and others, after many experiments, largely on rabbits, obtained somewhat varying results, but in general, a fall of temperature. Naunyn and Quincke in 1869, following the idea of

\* Read before California Academy of Medicine, April, 1911.

Tscheschichin who had prevented fall of temperature for a long time by keeping the animals warm after cord severance, experimented upon large dogs by crushing the cervical cord, endeavoring to produce conditions similar to clinical ones, and found that if they kept the dogs warm or in a closed chamber they usually developed high temperatures. The same result was obtained at times with simple section of the cord if made high up. These experiments were made late in the summer. Some made in winter with exposure of the animals to ordinary temperatures resulted in subnormal or normal temperatures. They considered the early fall in body temperature as due to paralysis of the vasomotors with consequent marked heat loss. This view coincides with that of Janssen.<sup>4</sup> The clinical cases reported by Billroth, Simon and Frerichs, in all of which high temperatures followed cervical cord injury, were thought by them to have been influenced by the fact that these accidents all occurred in the summer. In dogs a partial severance of the cord caused only slight or no elevation, and in one experiment after such a result a complete severance brought about the usual high temperature. That the lessened respiratory movements did not lead to the heat retention they were able to prove upon a dog in which they artificially interfered with respiration and yet the dog showed a lowered temperature. Their conclusion was that heat production



is increased in injuries of the 5th C. V. and they thought that instead of a hypothetical heat center in this region that fibres were severed which control oxidative processes in the body and so modify the heat production of the organs. They noted greater changes from cervical injuries than those lower down. There was an increase in heat production and in heat loss and the result obtained depended upon which factor outweighed the other. In other words after a cord lesion of the type described heat regulation ceased to exist and the body temperature became subject to various internal and external conditions.

Fischer<sup>5</sup> working about the same time with section of the cord at various levels concluded, after getting usually some elevation in the temperature of the dogs and rabbits with cervical section, that there was an inhibitory heat center in the cervical cord.

Binz<sup>6</sup> in 1870 working upon dogs with a tem-

perature already reduced by chloroform and morphin obtained similar and even more striking results.

Rosenthal, Riegel and Parinaud obtained different results by working with rabbits and in general found that below a certain external temperature animals with severed cords did not show a rise, in fact below about 90° F., a continuous loss in body temperature. To overcome the objection to Naunyn and Quincke's work that they kept injured dogs in a closed chamber, where because of their natural inability to sweat and necessary use of the tongue and respiration to cool themselves speedy water saturation of the enclosed air took place with consequent absence of cooling evaporation, the work of Parinaud<sup>7</sup> was done in the open air in the summer time in Paris. He also measured the temperature of various parts of the body, an essential thing in a condition associated with a marked fall of blood pressure and probable uneven distribution of the blood. The variable results of these experiments are analogous with the variable clinical findings but nevertheless they make it perfectly clear that cervical cord severance has a marked effect on heat regulation. Wood<sup>8</sup> in his well known treatise on fever showed that with the fall in blood pressure associated with cord severance a marked dissipation of heat occurred if severance was above the splanchnics. Pflüger<sup>9</sup> showed that metabolism was reduced one-half by cutting the cord at 5 to 6 c. v. as measured by relation of O absorbed to CO<sub>2</sub> given off. The use of curare by Zuntz,<sup>10</sup> Juliet and Regnard had a similar effect and Pflüger,<sup>11</sup> who carefully worked out this point, found about one-third reduction in the oxygen absorbed and the CO<sub>2</sub> given off due to its use. Zuntz<sup>12</sup> also found that if curarized rabbits were kept at a constant temperature in a bath, the respiratory exchange remained constant and it was impossible to induce the prompt septic fevers that occurred in uncurarized rabbits upon injection of septic material. Various investigators, among them Gildermeister, had shown that increased CO<sub>2</sub> was given off by intact animals in a cold bath due to nervous reflexes stimulating metabolism. Heidenhain believed that all of these temperature effects were due to vasomotor changes and that their regulation was a function of the vasomotor system, but the experiments upon various sections of the brain, heat puncture of Aronsohn and others, etc., all show that the nervous system has, besides its vasomotor function, a heat producing one and also probably exerts, at least through inhibitory centers, a definite influence upon heat regulation. Tscheschichin, Eulenberg and Landois, and Wood and Ott all describe a rise in temperature following section of the medulla from the pons. Hitzig, Bechterew, Wood, following Eulenberg's and Landois' work, found a center in the dog's brain practically identical with that for the hind limb, the destruction of which caused variations in temperature of the contralateral side, independent of muscular action. Injuries of the corpora striatum have been found by Ott and others to result in high temperatures. The experiments of Aronsohn and Sachs<sup>13</sup> upon heat puncture are particularly interesting. They found (1) that destruction of the mesial side of the corpora striatum lead



to increase in temperature and that (2) electrical stimulation of this area had a similar effect. Wittkowsky<sup>14</sup> after heat puncture found the CO<sub>2</sub> content of blood unchanged, while in septic fever there was a constant decrease. Martin<sup>15</sup> discovered that albumen was absent in the urine after heat puncture, but usually present in fever of septic origin. Schultz<sup>16</sup> concluded that heat production is due to a stimulation of the muscle without visible change, at the expense of nitrogen free bodies and perhaps, is closely associated with Pflüger's "chemical tone." Rolly<sup>17</sup> showed that with the consumption of Nitrogen free bodies after heat puncture goes an increase in the temperature of the liver, it becoming the warmest organ of the body (Hirsch and Rolly<sup>18</sup>). In fact the presence of glycogen in the liver was found necessary to obtain the hyperpyrexia after puncture.

Kemp,<sup>19</sup> experimenting with curare, thought that he had proved that there are nerve fibres going to the muscles, distinct from the motor fibres which control the production of heat. Mosso<sup>20</sup> showed that after paralyzing an animal with curare the injection of strychnin led to increase temperature.

Ito<sup>21</sup> found that the duodenal temperature increased more after heat puncture than any other part of the body and recently (1910) Sinelnikow<sup>22</sup> working under the direction of Knonecker has claimed that the effect of heat puncture is upon the abdominal organs, liver, etc., rather than upon the muscles, and Streerath<sup>23</sup> has located the most effective site for causing elevation of temperature as a sharply bounded area at the anterior medial portion of the optic thalamus and found that strychnin produces its effects sooner, and in smaller doses on "heat puncture" animals. Pembrey<sup>24</sup> in 1897 reported two cases of traumatic cord section in man in the hope of clearing up the point as to which is the cause of the change in temperature; increased or diminished heat loss or increased or diminished heat production. The data furnished is insufficient, but observations were made upon deep and superficial temperatures and he concludes that the power of heat regulation is abolished by such injury and that if the patient is exposed to moderate cold the temperature falls because of increased loss of heat and diminished production of heat, in other words the normal stimuli leading to increased heat production and diminished heat loss are lacking. With heavy bed clothes increased temperature due to increased heat production, and diminished loss is obtained. He says that the paralyzed parts soon cease to sweat, the lungs ventilate less perfectly and the increase in temperature once established leads to increased metabolism.

With these experimental and clinical results in mind a brief review of the present case is of interest. In spite of the flaccid condition of all of the skeletal muscles of the body except those about the neck and head, the lessened heart action (moderate pressure with slow pulse), the absolute freedom from infection, and the small amounts of food and water taken, this patient, with a crushed cervical cord, developed a hyperpyrexia, although the weather was not unduly warm and the amount of bed clothes was very moderate. Unfortunately, be-

cause of the absence of the local weather observer we are unable to submit a temperature curve with the clinical record, but it is quite clear from the chart that the ordinary diurnal variation of the California climate played no evident part in the rise and fall of the body temperature. It is true that there was no marked vasomotor disturbance of the skin, except a persistent *tasche cerebrale* after stroking it, only normal sweating, and that, although the diaphragmatic breathing was increased in rate, it probably was inefficient in ventilation as judged from the stasis at the pulmonary bases and the cyanosis. The mouth was usually dry and thirst was complained of. Probably some of the elevation of temperature was due to heat retention from inability of the body to cool itself by evaporation from the skin and lungs, but there was no marked interference with the loss of heat by radiation and conduction, the most important method of loss, so that we can probably look upon the hyperpyrexia as due to increased heat production. It is interesting to note that strychnin was given our patient several times and this may have played a part in increasing the temperature by some direct effect on the cord or muscles. The exact source of the heat it is impossible to determine. It certainly is most striking to get so much generated when the major portion of the body muscles are thrown out of motor function. It would seem as if chemical processes in the quiescent muscles, perhaps controlled by special nerve fibres (Kemp, Mosso), might explain it. The relation of the anterior horn cells to the muscles was not disturbed except over a limited area. There were no noticeable spasms of the neck muscles, nor evident muscular changes about the site of injury. It is true that there was a steady pull exerted upon the neck muscles by weights attached to a harness supporting the head. This may have contributed much to heat production. The liver and the intestinal tract and the various glands undoubtedly supply much of the body's heat and their part may be as great as would be indicated by the effect noted by Rolly and later Sinelnikow upon animals where no increase in temperature took place in injuries of the nervous system unless there was a preliminary store of glycogen in the liver. Unfortunately we made no glycogen determinations upon the liver in the present instance. The extent of the relation of vasomotor mechanism to the regulation of heat is difficult to determine in any given case, as well as in general. Judging from the experimental work done and our case, it would seem to play a subsidiary part in the temperature changes. It seems true, as Krehl has said, that after cord severance the body temperature becomes a "plaything of circumstances." That there are some inhibitory nerve paths that have to do with heat regulation and that pass through the cervical cord from the higher centers seems likely. It is also interesting in this connection to note that the higher the lesion the greater the effect produced upon temperature.

Clinically, the changes in temperature following cord injuries are significant in making probable the occurrence of hysterical fever as described by Dippe<sup>25</sup> and Levison,<sup>26</sup> especially where the halves

of the body differ in temperature; also of fevers in the hypnotic state and perhaps such so-called reflex fevers as catheter fever, etc. The points brought out by Wittkowsky and Martin in distinguishing the high temperatures of nervous origin from those due to sepsis are also worthy of note in differential diagnosis. Persistent high or low temperature after spinal injuries high up, where no infection is present mean, (judging from all the cases I have been able to find on record) a complete section of the cord. The higher the lesion the higher the temperature is apt to be. The damage done is usually from the preliminary crushing and haemorrhages and not from persistent bone pressure on the cord. The number of recorded cases where bone pressure persists in the cervical cord regions is very small. That the retention of the normal plantar reflex (and even its exaggeration, so that the whole leg moves in the absence of the patellar and other reflexes) may take place in complete section of the cord is a fact to be remembered, and it may indicate a state of the cord permitting of impulses reaching the muscles from the cord and having to do with heat production.

Further study of such cases as the present one may bring out important physiological facts in regard to heat regulation. It is to be regretted that conditions did not favor a more complete study of this case. Careful plethysmograph and blood pressure tracings, a study of the temperature of various parts of the body under varying conditions, an estimation of the glycogen in the liver after death would all be valuable, and not difficult to carry out. A study, by Waller's method, of the moisture given off, or the use of a calorimeter, would add much to our present knowledge. If the interest of others, who may have such cases fall into their hands, is attracted by the present report, its aim will have been fulfilled.

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## TREATMENT OF NAEVUS VASCULARIS BY THE USE OF CARBON DIOXIDE SNOW.

By D. FRIEDLANDER, M. D., San Francisco.

Within the last ten years, or, more properly speaking, within the last five years, for it is only within that time that it has been brought into practical use, a new remedial agent has taken a definite place in dermatological therapeutics, an agent, which possesses many of the virtues of the older remedies, physical and otherwise, without many of their disadvantages; I refer to refrigeration. The principle of refrigeration, as first instituted by Delferson<sup>1</sup>, consisted in applying an ethyl chloride spray to the diseased areas; later liquid air was brought forward, and it was the desire for a more stable, more convenient and cheaper substitute that was responsible for the advent of solidified carbon dioxide, the credit for the utilization of which belongs to Pusey. The fact that the application of carbon dioxide or liquid air, under pressure, produces a freezing of the tissues to a considerable depth, distinguishes freezing from all other similar methods.

In order that the terms applied might be clearly understood it seems to me that it would be appropriate to classify the vascular naevi, and I would divide them, for practical purposes, as follows:

1. Flat Naevi—*a.* Naevus Araneus.  
*b.* Naevus Flammeus.
2. Hypertrophic Naevi—*a.* Cuticular.  
*b.* Subcuticular.
3. Angioma Cavernosum (Winiwater).

1a. Naevus Araneus is the ordinary spider naevus consisting of a central capillary vessel with small arborescent branches and normal skin between the branches.

1b. Naevus Flammeus consists of a superficial plexus of dilated capillary vessels, which are so closely approximated as to show no normal tissue between them, displaying a uniform discoloration, popularly known as "port-wine" mark.

2a and 2b. Hypertrophic naevi consist of a well defined, elevated, often irregular, mass of intercommunicating blood vessels of uniform color, showing a tendency to increase in size shortly after birth and then remaining stationary. The subdivisions are obvious.

3. Angioma Cavernosum is practically the same as No. 2 with the exception that it continues to increase in size at the expense of the surrounding tissues, which it destroys by pressure.

*Action on the Tissues.*—The initial result of the application of the snow is a temporary contraction of the blood vessels, the skin appearing white, de-



pressed, and of china-like hardness, the depth of which may vary from 1-32 to  $\frac{1}{8}$  of an inch, according to the length and pressure of the application, and this persists until the frozen surface begins to thaw, when rapid dilation of the vessels occurs. The resulting erythema is followed, in from 2 to 24 hours, by the formation of a vesicle and a certain oedema. Within 2 or 3 days, the oedema disappears and the vesicle is replaced by a crust which separates, without ulceration or hemorrhage, in from 9 to 14 days, leaving a smooth scar of normal color. Occasionally a slight pinkish tinge persists a week or two, but this disappears without treatment, being purely the result of inflammatory reaction.

layer, ten seconds will attack the papillary layer, while twenty to sixty seconds will suffice for deeper growths. This agent, then, attacks not only all the layers of the skin, but also the cells of the subcutaneous tissues and such tissues as may be of low vitality, are readily destroyed by a reaction which need not be so severe as to destroy the healthy cells. We have, then, an agent that can produce sufficient irritative action on the vascular tissues of an angioma to cause a partial or complete endarteritis, at the same time, leaving sufficient epidermal cells to restore, to all intents and purposes, a normal skin. Thus it is apparent that the snow does not act, strictly speaking, as a caustic, since it does not destroy tissue immediately, but the blanching of the skin and the retraction of the lesion are due to an interstitial fibrosis and the obliteration of the vessels.



Naevus of Cheek.



Result of Treatment.

Fabry<sup>2</sup> gives the following reactions as a result of treatment on the skin:

1 min.	1½ min.
8 hrs., slightly red, small vesicle.	Reddening.
48 hrs., large bleb.	Vesicle.
72 hrs., large bleb.	Small vesicle.
6 days., vesicle.	Hard tissue.
2 min.	3 min.
No reaction.	Reddening.
Indurated skin, no vesicle.	Large bleb.
Sunken tissue.	Small hemorrhagic vesicle.
Adherent, long strips of skin.	Infiltrated hemorrhagic tissue.

Carbon dioxide snow causes in living tissue by its sudden, strong, cold effect a sharply defined inflammatory reaction, the depth of which depends on the duration of the treatment; five seconds, according to Hubbard<sup>3</sup>, will remove the top cellular

*Microscopical Action on the Tissues.*—Juliusberg<sup>4</sup> finds in tissues excised 14 hours after treatment, that the epithelium shows the most changes, the cells appearing structureless and homogeneous and the nucleoli, with the exception of a few cells in the basal layer, do not stain. Beneath the epithelium is found a thick border of large polynuclear leucocytes, which also infiltrate the connective tissue, and the connective tissue cells, likewise, are swollen and hypertrophic; the lymph spaces are widely dilated and filled with a coagulated homogeneous mass. The blood vessels show a perivascular infiltration of leucocytes and are dilated and filled with thrombi composed of erythrocytes, or leucocytes, or hyaline or of the mixed variety. The elastic fibres are unchanged, but Weigert's stain shows the entire connective tissues to be impregnated with fine strands of fibrin. Bunch<sup>5</sup> suggests that the katabolic appearance of the sections might be due to rupture of the cell membrane, since a temperature below 4° C. causes water to expand and this expansion might well produce a rupture of the cell membrane.

In a specimen of an angiomatous tumor, which had been incompletely treated by the author one year before, the patient having died of intercurrent disease, secured and prepared through the courtesy of Dr. S. L. Haas, the following conditions prevailed: after placing the tissue in Kaiserling I, paraffin sections were cut and stained with eosin and alum haemotoxylin, Van Gieson's stain and Weigert's elastic tissue stain with the following appearance:

*Eosin-haemotoxylin.*—The epidermis is thin, although there is a relative thickening of the horny layer, and the Malpighian layer averages about six cells in depth with but very little differentiation of the various layers. The cutis is considerably thickened and very fibrous and, occupying its lower layer and extending somewhat into the tela subcutanea, is a tumor with the following appearance: the tumor is not of regular outline, but divided into irregular groups of tissue stroma like the rest of the corium. The tumor is composed of capillaries of varying size, in many places still containing blood arranged in varying degrees of compactness. Two types of cells predominate in the tumor, one with a fusiform pycnotic nuclei like that of the endothelial cells lining the capillaries, the other containing large, vesicular and irregular nuclei. Scattered throughout the tumor are hyaline, bluish red staining bodies,

tumor also occupied the upper layers of the corium, preceding treatment, and this a portion which has not undergone retrogression, the appearance of the remainder of the corium, i. e., the fibrosis, thickening of the vessel walls and the thrombosis, is in all probability due to the treatment; the fibrous tissue having replaced the vascular elements.

Sections stained with Weigert's stain show an increased thickness of the elastica interna of the vessels, while Van Gieson's stain offers nothing additional.

*Action of Bacteria.*—Although the investigations of White,<sup>6</sup> MacFayden,<sup>7</sup> and Wolf and Meyer<sup>8</sup> have shown, experimentally, that the prolonged to intense cold ( $-180^{\circ}$  C.) has no effect on pathogenic bacteria, it probably lowers the resistance of the organism and allows the natural forces to overcome the invaders, also the reaction caused by the snow, may assist in the destruction of the bacteria.

*Comparison With Other Methods.*—The methods with which carbon dioxide snow might be compared are as follows: 1, Liquid air; 2, radium; 3, surgery; 4, cautery puncture; 5, electrolysis; 6, high frequency spark. 1. Liquid air undoubtedly does splendid work and probably its effect more rapidly, due to its temperature of  $-180^{\circ}$  C., but on the other hand, it is commercially unobtainable, hard to preserve, costly, difficult to apply to small areas, and considerable skill and practice are necessary to limit it to the diseased part.



Naevus of Forehead.

about 30 u. in diameter, which do not appear to lie in the vessels; and many of the vessels of the tumor and the underlying tissue show considerable thickening of their walls, especially in the media, while a few vessels contain fairly well organized thrombi. Scattered throughout the tumor are a few hair follicles, sebaceous and sudoriferous glands.

In one portion of the section (Fig. 1 and 2), occupying the upper layer of the corium just beneath the epidermis, is an island of tumor tissue, which has the same appearance as the main tumor mass, with the exception that there is more fibrous tissue separating the capillaries. Since the original



After Treatment.

2. Radium causes no immediate destruction of tissue, the results being due to a reaction of the tissues, but radium, in effective quantities or strength, is practically prohibited to the average practitioner on account of its cost, and one may have to wait weeks or months for a reaction. Furthermore, it is exceedingly difficult to keep in place on a restless child, and it is mainly in children that we find these growths, and finally, it occasionally produces telangiectases.

3. Surgery submits the patient to all the dangers of an operation and an anaesthetic, it is painful, bloody, not infrequently followed by recurrence and the cosmetic result leaves much to be desired.



4. Cautery puncture is chiefly valuable only in naevus araneus or in punctate hypertrophic naevi. It is a painful prolonged treatment and the cosmetic result is far inferior to that of carbon dioxide snow.

5. Electrolysis is undoubtedly superior in the treatment of naevus araneus or teleangectases, but, like cautery puncture, is painful, must be often repeated and frequently fails.

6. The high frequency spark is often efficacious in the treatment of naevus flammeus, but is open to the same objections as Nos. 4 and 5.

Knauer<sup>9</sup> claims trichloroacetic acid is equal in every way to carbon dioxide snow, cheaper and easier to prepare; but whatever diseases this may be applied to, it is certainly not applicable to the treatment of angiomas.

Against this array, we have, on the side of carbon dioxide snow, the following facts: the apparatus and materials for preparing, collecting and applying it can be always at hand and the preparation involves only a few minutes and the cost is small. It is bloodless, comparatively painless, rapid and the number of treatments are exceedingly few, and, while its temperature is not as low as that of liquid air and its action slightly slower, it avoids all danger of a slough and the amount of pressure can be definitely regulated. Furthermore, there is no difficulty in confining the application to the border of the lesion and, finally, the cosmetic result, i. e., a fine pliable, smooth, white, hardly visible scar, is not equalled by any other method; in fact, as MacLeod<sup>10</sup> says, "with the possible exception of radium, which is the only agent which approaches it in efficiency, it is questionable, if we did not have carbon dioxide snow, whether it would be advisable to treat the common raised angiomas of infants."

*Apparatus and Method of Preparation of the Snow.*—Carbon dioxide gas is reduced to a liquid at a pressure of thirty atmospheres and a temperature of 0° C. and, as delivered in tanks, is a colorless, transparent, liquid which, when exposed to the air, evaporates rapidly with the result that a far greater degree of cold is produced, and the fluid is changed to a loose white snow-like substance. The apparatus utilized for collecting the snow and preparing it for application may be divided into three classes: 1st, those in which the snow is loosely assembled and transferred to a receptacle of varied size or shape for the purpose of compressing same into a solid state. The objection to this form of apparatus, which is exemplified by the tubes of Sutton<sup>11</sup> or Kaznitsky<sup>12</sup> is that the snow must be handled twice and the resulting stick, except that produced by the apparatus of Biddle and Wollenberg<sup>13</sup> is not of the desired firmness. 2nd. The second class of apparatus, as exemplified by that of Hubbard<sup>8</sup> and Freund,<sup>14</sup> compress the snow in the receptacle with whatever firmness may be obtained from the pressure of the gas as it issues from the tank. While this removes the objection of handling the snow twice, the resulting stick is not as firm as might be desired. 3rd. The third type of apparatus is one in which the snow is collected and compressed to the hardness of ice in the same receptacle, and it is an apparatus of this type that the author has been

using for the past three years. A similar apparatus, with the exception that a special attachment must be applied to form a firm stick, is described by Edwards<sup>15</sup> (July 8, 1911) as an original apparatus.

The apparatus used consists of a brass cylinder of an interior diameter of one inch and a total length of eight inches, the lower end of which tapers down, in the last one and one-half inches, to three-eighths of an inch in diameter and is perforated for five and one-half inches of the shaft with numerous openings of a small size.

These openings are in turn covered by chamois skin fastened with silk thread, which is surmounted by a hard rubber sleeve, also perforated. The upper end of the apparatus is threaded to screw, with the interposition of a suitable union, directly to the tank. In order to form the stick, the outlet of the tank is depressed to an angle of approximately 45° or totally inverted, and, after covering the apparatus with a towel, to prevent too rapid evaporation, the gas is slowly turned on. In approximately one minute, the cylinder is filled with a fairly compact snow, the valve is turned off, and the apparatus removed from the tank. A threaded piston, which can be screwed into the upper end of the tube, by means of a shield which it carries, is now inserted and the piston is forced home by means of its screw until further compression is difficult. The piston is then removed from the cylinder and the resulting block of ice released by allowing hot water to



Fig. No. 1. showing an island of angiomatic tissue (probably an untreated area) surrounded by dense fibrous tissue.

run on the apparatus until, by shaking it, the ice falls out, or, if so desired, the tapering nozzle can be removed and the collector used as an applicator.

The resulting stick is about 2½ inches long, firm as ice, can be cut with a penknife and presents a diameter varying from ¾ to 1 inch. No special applicator is necessary, an ordinary thumb forceps fulfilling all requirements.

*Method of Application.*—Since the effect produced by the treatment depends on the following factors, all applications must be made with these in view; they are: 1st, duration of the treatment; 2nd, the amount of pressure applied, and also two secondary factors, which enter into play, (a) the individual sensitiveness of the skin; (b) the resistance of the treated tissues.

As a preliminary to the treatment, it is desirable to wash the surface with alcohol to diminish the possibility of infection, and if lesions on the eyelid, or the mucous membrane of the mouth or lips are treated, it is desirable to protect the eyeball in one case, the gums in the other, with cotton, which should be dry; otherwise, the cotton will freeze and act, in a milder degree, like the snow itself.

The pressure, which is essential, should be applied in proportion to the depth of the lesion, generally speaking, it should be of sufficient strength to cause anaemia of the treated area, since this condition is essential to the success of the treatment; for if no pressure be applied no freezing occurs, since the stick gives off gas so rapidly that, without pressure, a layer of gas (Crook's layer) is maintained between the skin and the stick and actual contact of the two prevented. The insertion of the stick in ether for the purpose of reducing the temperature of the snow is, according to Pusey,<sup>16</sup> fallacious, since the stick only lowers the temperature of the ether to that of the snow. Strauss<sup>17</sup> recommends that deep seated angiomata be sensitized to the action of the snow by previous exposure to the X ray (4/5 of the erythema dose with a medium soft tube), and Pusey<sup>16</sup> advises that flat naevi be treated with the X ray to the point of slight reaction before freezing, while Morton<sup>22</sup> suggests the use of the high frequency spark for the same purpose. The use of both these agents, and also radium, by causing a slight reaction of the tissue prior to the application of the snow enable us, often, to produce a far quicker result than would be possible with the use of the snow alone.

It is best, in figuring out the duration of the treatment, to err on the side of safety, and with ordinary lesions 10 seconds will suffice for the first application; if the area be large, several applications may be necessary, although, generally speaking, 30 seconds can be given without danger of scarring. Should, however, destruction be the goal desired, without particular regard for cosmetic result, treatment of 1 minute may be given, followed by a second treatment of the same duration immediately on the thawing out of the first. It is not desirable, except for the purpose of destruction, to make a second application to a treated area, until the lesion caused by the treatment is entirely healed; and one should not be too hasty about applying a second treatment, since the lesion often continues to retrogress for several weeks after it has healed, and a second application may cause a slight depression in the skin and spoil what would be, otherwise, an excellent cosmetic result. Thus the action of carbon dioxide snow can be graded from a mildly stimulating one to that of an active destructive agent.

*Factors Increasing Susceptibility.*—The face and flexor surfaces are most sensitive, women, particu-

larly blondes, are more sensitive than men, while children are most sensitive, 3-4 times as much so as adults, 5 seconds producing as much effect on a nursing as 20 seconds on an adult, while exposure to the X ray, radium or the high frequency spark increases the sensitiveness of the skin to the snow.

*Contraindications.*—Patterson<sup>18</sup> advises against using it, for a long period of time, on alcoholics, diabetics, those suffering from arteriosclerosis or on lesions situated directly over bony prominences; however, the author has used it repeatedly on lesions situated over bony projections, without the slightest deleterious effect.

*Results.*—Broadly speaking, you can destroy the vascular tissue in vascular naevi with carbon dioxide snow, and the only objection lies in making these areas depressed or abnormally white. Morton<sup>20</sup> reports 105 cases presenting 129 naevi of the following varieties:

Capillary .....	85
Cavernous .....	32
Capillary and cavernous .....	5
Port wine marks .....	4
Lymphatic .....	2
Stellate .....	1

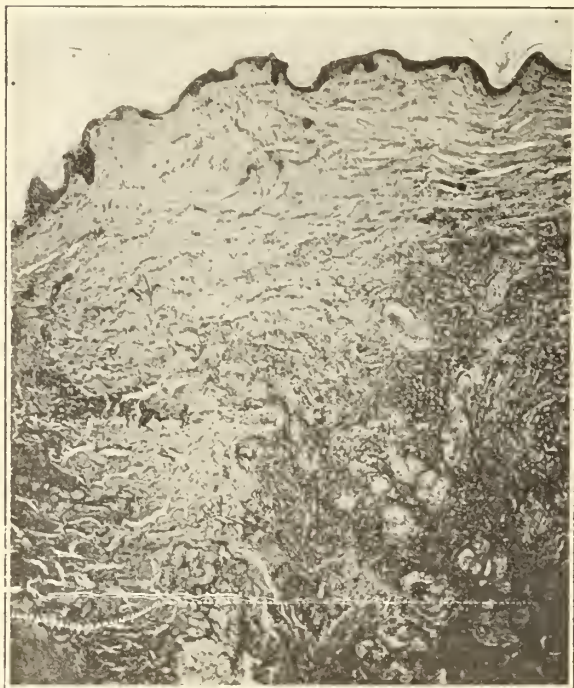


Fig. No. 2, showing the skin surface of same island of angiomatous tissue together with adjoining fibrous tissue.

Of the capillary variety, 74 were cured in one application, 6 in 2, 2 in 4, and 1 failure. Of the cavernous variety, 20 were cured in 1 application, 4 in 2, 2 in 3 applications and 6 failures. Of the entire series, 2 had electrolysis and the port wine marks are still under treatment. This shows 87% of capillary naevi and 62½% of the cavernous variety cured by a single application. Bunch,<sup>5</sup> in reporting a series of 300 cases, without giving any statistics, says, in the majority of cases, that a single application is sufficient, while Salomon<sup>23</sup> reports 250 cases of angiomata with 93 permanent



cures and Wickham<sup>21</sup> treated telangeiectases, caused by the X ray, with excellent results.

The best results are obtained where the blood vessels lie in the skin, but with deep cavernous angiomas, where destruction is impossible, undesirable or dangerous, a very satisfactory covering of connective tissue is produced, which is smooth and has a texture hardly distinguishable from normal skin. A case of a large hypertrophic naevus of the scalp of bright red color and raspberry-like surface, treated by the author with carbon dioxide snow, now presents a slightly elevated, smooth, white surface, bearing a fairly profuse growth of hair where apparently none existed prior to treatment. This, of course, is not a curative procedure, but as a cosmetic process by which the more obvious and distressing lesions may be concealed, it certainly must be recognized as a distinct addition to our therapeutic armamentarium.

**Bad Results.**—Occasionally the application is followed by a neuralgia, especially when the area treated is over the site of emergence of a nerve, but this is only transient, passes away in 2 or 3 hours, and is easily controlled with hot applications; it is also possible that an incompetent or incautious operator will produce, by over treatment, a hard white ivory-like scar, or a depressed one, but these are errors of technique. Janeway<sup>19</sup> reports of lupus erythematosus, treated with the snow, in which an epithelioma developed, but, as his had been previously treated with the X ray, it is far more probable that the lesion was due to the first treatment. Heidensfeld<sup>24</sup> also reports a case, in a 4-year-old child, where, some time following the treatment of a large angioma of the forearm, the lesion became the seat of an acute inflammatory process with multiple, actively purulent, foul smelling and somewhat gangrenous ulcerations, which resisted all forms of local treatment, and with no attributable cause. This is the only really bad result reported in many hundreds of cases, and was, in all probability, not due to the snow.

**After-Treatment.**—As a rule, the less treatment applied to the lesion the better the result; a simple ointment of equal parts of ung. zinci oxidi and vaseline will suffice to protect the parts and alleviate any sense of discomfort; outside of this it is not necessary to carry out any treatment except in those cases where a slight oozing occurs on separation of the crust, which not infrequently happens in large hypertrophic naevi. This is, however, of no moment, and is readily controlled, without the aid of a physician, by the pressure of pledgets of cotton soaked in peroxide of hydrogen.

**Conclusions.**—We have then, in carbon dioxide snow, a simple, effectual, comparatively painless, bloodless and certain agent which is far preferable to any other remedy in point of rapidity, ease of execution from the standpoint of the operator, and tolerance on the part of the patient; and, since the great majority of these patients are children, painlessness and rapidity are of prime importance. Furthermore, the cosmetic result cannot be excelled, and seldom equalled by any other agent, and, in that class of cases where a radical cure is not obtained,

it is a safe and efficient method for relieving the disagreeable disfigurement which causes the patient so much discomfort and annoyance.

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#### MISTAKES IN MEDICAL EDUCATION.\*

By DUDLEY TAIT, San Francisco.

It affords me sincere pleasure to express publicly my admiration for the highmindedness that has characterized the conduct of the Oakland College of Medicine, its strict adherence to absolute honesty in the face of temptation, its loyalty to sound principles, and above all, its freedom from the taint of commercialism.

My admiration is enhanced by the obviously ephemeral character of such an institution; for it is no longer possible to maintain a modern medical school on the basis of personal sacrifice.

The faculty should find both hope and encouragement in the knowledge that the State University was born in Oakland, under the name of California College, at the corner of Fourteenth and Webster streets.

As a contrast, I crave your attention this evening to a few sketchy impressions and observations, based upon eight years' experience as a state medical official.

The most salient fact demonstrated by a methodical and persistent investigation of over eighty medical colleges of this country was their flagrant deviation from, not to say contempt for, the written law. This wholesale shortcircuiting of what commonly constitutes honesty in commercial and industrial lines was noted in the small as well as in the large schools, in humble quarters as well as in great centers. My stenographer sent a letter to fifty colleges, the published announcements of which made a high

\* An address delivered at the graduating exercises of the Oakland College of Medicine.

school diploma the minimum matriculation requirement, advising the dean of her desire to begin the study of medicine, and calling his attention very explicitly to the fact that her preliminary training consisted only of an incomplete grammar school course. She also stated her willingness to make any necessary pecuniary sacrifice in order to reach the goal of her ambition, the degree of M. D.

Within a week our mail carrier showed signs of fatigue; never before had telegrams been left in such numbers at my office. Two replies contained advice of the highest order as to the necessity of a thorough preliminary training prior to entering upon the career of medicine. In the vast majority of cases, however, unconditional matriculation was granted. A Kansas dean wired his willingness to meet the young lady at the depot. A Texas dean wrote effusively: "Enchanted to hear from you. Hope you will come soon. Tell me more of yourself in your next letter."

Thus, fraudulent, dishonest methods inveigle the naive, poorly equipped matriculant, follow and contaminate him during his much abbreviated annual courses, and then foist him upon the unsuspecting public, to sing the praises of his commercially steeped Alma Mater, bring discredit, if not disgrace, upon the title of M. D. and eventually swell the ranks of that worst of social vampires—the quack. How could it be otherwise if the stream is polluted at its origin, if colleges seek to enrich themselves through wholesale violations of the laws regulating the practice of medicine, and fail to even observe the conditions enumerated in their own published announcements? In business circles such methods are considered violations of contract and made amenable to criminal law. The practice, however, has been prevalent in the medical schools of this country for so many decades that the element of fraud no longer surprises. In most of the states, Boards of Examiners have the power to adjust these conditions, but unfortunately these quasi-judicial bodies, designed primarily for the protection of the public, have not always kept faith with the people; many have been false to their oath of office and have wilfully neglected those sections of the statute regulating the character and extent of medical education.

Indeed, state medical examiners seldom avail themselves of the splendid educational opportunities delegated to them by legislatures. Only a few years ago California was credited with the possession of the highest standard of examinations for licensure. To-day, by reason of endless exemptions accorded organized pathies and isms (naturopaths), cancer fakers and healers, failure to investigate medical colleges, non-enforcement of the legal mini-

um standard of qualifications as determined annually by the Association of American Medical Colleges, neglect to extend what this State first inaugurated, i. e., practical examinations, and finally the astounding lowering of the marking system enacted by the recent legislature, to-day the California medical act has been robbed of almost all its power for good and relegated to the Massachusetts level—the lowest in the United States. Alone among the States, California may boast of having increased the number of its medical colleges during the past half decade. The matriculation list of one of the Los Angeles schools of Osteopathy exceeds the total enrollment of the ten medical colleges of the Pacific Coast.

The conclusion is self-evident: neither the profession nor the public wanted a high standard of medical education in California. We seem to be advancing rapidly toward the open door policy, thus hastening the inevitable realization of the socialistic dream of state control of health services and of medical education. But let us return to our mutt-tons, the medical colleges.

Is it astonishing, with fraud written all over medical college announcements, that 15 per cent. of the graduates in medicine throw aside their sheepskins and seek other fields of labor prior to their third year of practice? Such are, nevertheless, the conditions prevailing in this country, and no other country can attempt to duplicate this eloquent but lamentable record of failures, failures almost invariably directly traceable to that shameless American product—the greedy, predatory, short-cut, proprietary medical school. May it not, therefore, be asked with some degree of propriety if medical schools are not largely responsible for the distrust of scientific opinion so prevalent in this democratic country?

In the opinion of many, the mere increasing of matriculation requirements constitutes the essential, if not the only means of raising the standard of medicine. While no one will deny the desirability of a training in the fundamentals prior to entering upon a medical career, one is, nevertheless, justified in asking if the medical teaching faculty has advanced *pari passu* with the medical student body. After prolonged search I fail to see it.

Has the clinician made a corresponding sacrifice of time or adapted himself to the standard of his biologically trained audience? In his honest endeavor to recede from time-worn didactic methods of teaching, has he broken absolutely with tradition and espoused the cause of scientific principles? Has he practiced less and investigated more? How many schools would dare answer affirmatively?



Perhaps the solution will be found in the gradual development of a new type of teacher: the university clinician, capable both of intelligently bridging the academic and clinical years and of establishing a more profitable co-operation between the various departments of the university.

The fundamental question is, how may the necessarily limited time of medical education be most profitably employed in imparting to the student such knowledge as is most useful to him in his future career? How has the faculty answered this question? In the majority of instances, by confronting the student with additional subjects, additional courses, additional units, additional text-book details, additional parrot-like recitations, and with it all the four-year system is still religiously adhered to. It is just this cramming process and especially the unfortunate appropriation of time by the teachers in the intermediate subjects that causes tired and neurasthenic students; the able men are severely maimed, the weaklings are ruined for life as they become veneered with prejudice, having never learned to think for themselves or to work unaided. Starling aptly remarks that in giving his whole soul to his work the student loses his soul. How can we expect a tired student to exercise a trained reflective and analytic habit of mind on the numerous problems which present themselves?

Some medical schools of the ambitious university type have, I am convinced, reached the height of pedagogic absurdity in their endeavor to elevate the standard of medical education.

To discover and to teach are distinct functions; they are also distinct gifts and are not commonly united in the same person. While teaching involves external engagements, the natural home for experiment and speculation is retirement. Failure to appreciate the difference between the dissemination of knowledge and the advance of knowledge, has given rise to much confusion of thought and a tremendous loss of time and energy.

Is it not prostituting science to expect an eminent research man to teach freshmen? Is it not wholly unjust to both? Again, why should medical men be taught by physicists who know nothing of the physics required in physiology and practical medicine, and by chemists whose interest does not lie in the problems of pathological and physiological chemistry? Were it not better that chemistry be taught by the physiological physicist, by medical men who have gone through the whole training and know the needs and aim of practical medicine? At the beginning of their career, medical students become the sport of biologists, who use them as the flotsam and jetsam of their seas of learning and oceans of theories. "Biology as taught by non-medical men must go."\* Teachers of anatomy must not forget that surgery is the proof of anatomy. Minute descriptive anatomy should not be allowed to crowd out applied anatomy, to the ultimate embarrassment of the junior student who enters the operating-room or faces the course in operative surgery.

\*The writer was more profoundly impressed by the discussion on the scientific education of the medical student at the 76th annual meeting of the British Medical Association than by all other similar addresses. (Br. Med. J., Aug. 15, 1908.)

We should weigh carefully the suggestion made by the world-renowned biologist, Jacques Loeb—that the prevailing mode of teaching anatomy, i. e., from the morphological viewpoint, has an atrophying effect upon the student's scientific interest and should give way to the functional method of teaching.

The ordinary student who is destined to become a general practitioner ought not to be required to spend time on the acquisition of knowledge which he will never use. The whole of his studies should have a distinct bearing on, and lead up to, the knowledge of the human body and its control in disease. The whole medical college should not be compelled to spend a disproportionate amount of time and energy upon subjects which will be of real use to a very few only, whilst subjects of the greatest importance have to be neglected in proportion to the amount of time devoted to ultra scientific matters. The accessory sciences must of necessity be subordinated to the highest purpose in the education of the medical man—to make him fit for the exercise of his future duties.

Were some medical faculties to pause and remember the immortal words uttered two thousand years ago by the Father of Medicine, "Art is long, time is short and technique is difficult," they would abandon the role of precedent worshipers, extend the medical rather than the premedical curriculum, cease developing the student's memorial powers, stop training parrots, get rid of "antiquated dictionary stuff," abolish the monastic system of examinations, and thus eliminate the large element of lottery, lead the student to the bedside at a much earlier date, devote three-quarters of the curriculum to clinical work, make the teacher responsible for the student, restore the old time close relation between the teacher and the student, and thus contribute to the primary aim of education, the formation of character and intellect.

"True and complete success in life requires more than mere aptness for learning, or the possession of a retentive memory, or facility of written or oral expression, or mere energy and zeal."

A man may possess all of these qualities and still lack the one indispensable requisite to ensure success in practical affairs—character—character and all that this term connotes, thoughtfulness, sympathy, courtesy and culture."

The teacher of the future must establish a forward outlook and instill hope in the student's mind. Hope, the dominant feature of modern thought, hope for the morrow, hope for the future, anticipation of something better, some improvement, or, at the very least, some change. Hope is the keynote of progress and the certain safeguard against retrogression.

#### SOME POINTS TO BE CONSIDERED IN FEEDING INFANTS.\*

By LANGLEY PORTER, M. D., San Francisco.  
From the Children's Clinic of Cooper Medical College.

A simple enumeration of those digestive juices and ferments which are known to be essential must comprise at least fifteen substances, most of which

\* Read in the Oakland Medical College Lecture Course, March 22, 1911.

are imperfectly studied. Realizing this, how difficult must it be to get any clear view of the physiology of digestion and its bearing on the problems we have to solve in feeding infants. Recent work has added much to our knowledge of the digestive process. However, what has been added is but a trifle compared to what still remains to be elucidated.

Before beginning the substitute feeding of children, one should study the physical and chemical differences between cow's milk and human milk and the differences in the structure of their fats and salts, and further, to search out the modifications of human digestion as affected by bovine milk fat and bovine albumins and salts. Not only must these factors be considered in any review of the digestion of substitute foods, but the modifying influences of the bacterial flora ingested with cow's milk must be taken into consideration. A further subject which must now occupy a foremost place in our considerations, is the effect of errors of metabolism on digestion. Too long have we been concerned only with digestive process to the neglect of the study of food absorption and utilization.

Beginning with the demonstrated existence of physiological stimuli and of appetite stimuli shown by the Pawlow School to be efficient both for gastric and pancreatic secretion, we find that these unquestioned facts find little application in current pediatric practice, and yet the practical value of the first is demonstrated in the marked improvement in the condition of an ailing child that often follows a change of nurses or of environment without any change in food mixtures. The installation of an understanding kindly nurse will often, without diet alteration, initiate a marked upward movement in the weight line of an infant who has been doing badly on a reasonable food mixture. The weight response to quiet, comfort, or warmth also testifies as does the improved health of the child to the validity of the principle.

That digestion waits on appetite is nowhere better demonstrated than in infant feeding practice. Anorexia and many nutritional upsets, especially those that follow overfeeding, are readily relieved by increasing the intervals between meals and reducing the number of meals to five in twenty-four hours if the child be less than a year, or if he is between his twelfth and sixteenth month, to four; and from this time on to three feedings in 24 hours.

The amount of food to be given at a meal presents a problem variously answered. Some would base the size of an infant's meal on the average amount taken by a healthy baby from the breast,

determined by ante and post prandial weighings. This is no standard at all as the child rarely takes a like amount at two feedings. Again, the size of the stomach determined post-mortem has been suggested as a guide but so variable is the size at any given age, and so fallacious the possible measurements, that this idea has passed, especially since the showing of Tobler that the fluid parts of milk begin at once to leave the stomach and that the volume of the curd is much less at any moment than the volume of the milk ingested. Appert has laid down the rule that a reasonable meal is one approximating  $1/50$  of the body weight and that a daily ration of  $1/10$  of the body weight plus 8 ounces is appropriate. Even this is open to the objection that weight varies with condition and the wasted child of six months old may weigh less than the well nourished one of three and yet need twice as much food. However, it may be accepted as a fair working rule, if we keep in mind that children need at least one gram of albumin per pound per day, or about what is contained in one ounce of milk.

A few years ago almost all American pediatricists, and among the Germans such men as Schlossman, Gaertner, and Monti, based substitute feeding on an attempt to modify cows' milk by manipulation until it became an artificial mothers' milk. Even had the chemical and physical make-up of the milks been identical, which they are far from being, the lack of uniformity in the proportions of fat, sugar, and albumin, contained in milk, doomed this plan to failure. Van Slyke has shown that in single milkings of individual cows, fat percentages vary from 2.25 to 9% and protein percentages from 2.19% to 8.5%, casein percentages from 1.5 to 4.5. In herd milk, fat variations from 3 to 5.50% occur, and the proteid content fluctuates between 2.3 and 3.7%. Even in milk resulting from blending the milkings of many herds percentages varied from 3 to 4.6% fat, 2.5 to 3.75% proteid, 2 to 3% casein. According to this author the variations were dependent on the following factors: (1) the individuality of the cow, (2) the breed, (3) the stage of lactation, (4) the ingested food, (5) the season, (6) the time and manner of milking. Half liters taken successively in a single milking of one cow gave in fat, percentages 2.2; 2.9; 3.5; 3.7; 3.8; 3.9; 4.6. As the milk of woman has been shown to be equally liable to variation it is obvious that all mathematical systems must fail in practice. Even to determine what the individual child ingests would be impossible unless one were able to resort to the Pawlow method of feeding with an oesophageal fistula. The milk secreted for the breast pump is not the same as that secreted under the stimulus of nursing. The last parts of the nursing are richer in fat than the first and even could we empty the stomach by tube after feeding, the changes wrought by digestion would vitiate the results of analysis. As to the chemical differences in the fats, proteid, and minerals, of the two fluids they are so great that in such a paper they can be no more than indicated. In the fats of bovine milk the melt-



ing points are higher than in human, with a result that they are less completely fluid in the infant's stomach and tend to coat proteid curds and so interfere with peptic digestion. The fatty acids carry in their construction many more of the unsaturated carbon groups than do fats of human milk. These are more readily set free in the stomach and often become a source of irritation. It is probable that in some instances that they prevent the proper opening of the pylorus. Such fatty compounds, lower in olein content than those of human milk, seem to form insoluble soaps more readily. This action is accelerated by the excessive amounts of salts, especially the salts of calcium that exist in cow's milk. The chemical result is that often when cow's milk fat is tolerated by the stomach, it causes constipation. It seems to me that this is truest of clean milk such as certified. Probably in those milks that have a high bacterial count the fats are partially broken down in the stomach and the evidences of gastric irritation arise from the presence of excessive amounts of fatty acids or soaps of the higher acids in the stomach, whereas when the milk is clean, the fats reach the saponifying pancreatic lipase unaltered except by the slight emulsifying action of the gastric lipase and of the bile, the alkali salts, and the  $\text{Co}^2$  set free by the neutralization.

Dr. Yerington, at the Lane Hospital, in an insufficient series of trials got evidence that seems to indicate that with clean milk of a certain fat, proteid ratio earthy soaps are formed in the intestine and excreted as such but that with a higher proportion of fat there appear free fatty acids, when the fat ratio is still higher free fat is wasted and gives rise to characteristic fat diarrhea. Personally, I think that when looseness of the bowels follows the exhibition of cream, it is most often because market cream or cream from ordinary dairy milk is used. Market cream is a mixture of dirt, starch, or gelatin, fatty acids, and bacteria, and makes a most effective, if rather dangerous, substitute for castor oil or rhubarb. An interesting fact well known to some nurses and mothers is that often when bottle babies are constipated olive oil or cod-liver oil will relieve the condition. It seems probable that this is due to the fact that the soaps of the alkaline earths are soluble in the olein of the oil and so are dissolved in the gut and more readily passed. Both oils carry a relatively high proportion of olein. The greatest objection, however, to the exhibition of excessive amounts of fat comes not from the digestive side but from the nutritive. From the most dependable researches it seems probable that fats after they are rebuilt in the intestinal mucosa are again broken down and reach the cells for utilization as fatty acids and when these acids are in excess they abstract from the body tissues and fluids mineral salts or ammonia radicals for their neutralization. These substances needed for the processes of proteid metabolism, are lost to the economy and there begins a destruction of body albumin. Often the first clinical signs of this damage are the development of a very definite ammoniacal odor in the urine, slight sweating about the head, and a peculiar lack of luster in the hair and skin.

There is little fat digestion in the stomach where,

though a small amount of lipase is present, the fat is not in an emulsified condition and where the gastric acidity rapidly puts a stop to its activity. Sedgwick has recently laid much stress on this gastric lipase and has found evidence to support a claim that it acts as an activator of pancreatic lipase. On account of the presence of alkali salts, pancreatic juice, and bile, in the intestine an exceedingly fine fat emulsion is produced. The emulsified fatty acids then react with the alkaline carbonates to form soaps, which soaps tear apart the fine particles of fat, making them still smaller. This process is also accelerated by the carbon dioxid which is set free when the fatty acids unite with the alkalies. The ingested fat is then broken up into fatty acids and glycerol. What proportion of ingested fat is saponified is not known, but the most authoritative investigators believe that it all is. In infants between 5 and 8% of the ingested fat is normally lost by the stool. The soaps are taken up by the gut wall disintegrated and passed on to the tissues probably as fatty acid.

The utilization of fat by the tissues is a physiological mystery incompletely worked out. A certain proportion when there is more than the animal needs for processes of combustion may be deposited as such, but the vastly greater proportion of ingested fat is burnt up and excreted by the lungs as  $\text{CO}_2$ . The intermediate steps of this process of combustion have never been clearly worked out, but Pohl's experiments suggest that the series of ethane products, malonic, tartronic, mesoxalic, and glyceric acids, which are fully combustible in the body, are the ones normally formed. On the other hand, it is also possible from this work to conceive that an incombustible acid of the series, oxalic, for instance, may be produced by some fault in metabolism, and it is not improbable that this may be the cause of certain cases of acidosis with convulsions and pseudomeningitis.

Abderhalden states that while both fat and carbohydrate can be produced in the body from albumin, it is improbable that such change occurs under ordinary feeding conditions. We must not then regard the albumins as sources of energy, but only as the ground materials for growth and repair. Energy must, for the most part, be derived from fat and carbohydrate. Starches which are polysacchrids and sugars which are inverted in the gut, absorbed through its wall, burned in the muscles, and excreted as carbon dioxid. There is no question but that excess of carbohydrates can be laid down as fat. But whether the reverse is ever true, that is whether fat ever be transformed in the body as carbohydrate is to be doubted.

The ultimate structure of proteids has become more clear to us since Emil Fischer began to work on them. Briefly they are complexes of those chemical compounds called amino or amido acids in which identity is established by the presence of that combination of one nitrogen and two hydrogen atoms known as amine. There are bound up in the combinations, which form proteids, two, three, or more of these amino acids. The combination of two amino acids is known as the diamino; of three triamino and so on until the point is reached where very many are united in one complex molecule,

which in Fischer's terminology is known as a polypeptid. These polypeptids appear in early proteid digestion and the final result of such digestion is the breaking down of these into their constituent simple amino acids. These proteid molecules also in some instances, contain sulphur and phosphorus. The casein molecule contains both, and the casein of bovine milk differs from that of human in that a smaller proportion of the phosphorus occurs in organic combination.

From the albumins of the milk, human or bovine, must be formed the varied proteid bodies that occur in the organism of the nursling. As none of these albumins are in the unaltered state, it is obvious that a profound splitting up of the casein, lact albumin and lactoglobulin must occur in the digestive tract of the child. One must marvel at the remarkable ability of the ferments and harmonies of the stomach, duodenum, pancreas, and jejunum that rend the complex proteid molecules into their constituent amido acids and the further series of ferments that rebuild these elemental integers of proteid (building stones the Germans name them) into the vast and complex array of cell and humoral albumins specific to the human structure. I will not attempt to burden you with more than to remind you that in considering abnormal digestion we have to keep in mind what Pawlow has taught us that the secretion of gastric juice gives varying response to different stimuli. To physiological stimuli, as hunger, or type of food, if these are insufficient or improper the secretion of gastric juice fails. We have also to remember that the pro-secretin in the duodenum is activated by the gastric juice entering the duodenum and that the proper secretion of pancreatic trypsinogen will depend on the change of the quiescent pro-secretin into the active hormone secretin, which without gastric juice of a certain acidity is impossible, and, further, that when the pancreas puts out its secretion in response, that trypsinogen, its ferment is inert until activated by the enterokinase which must be wedded to trypsinogen before the peptid can be broken down into the simpler amido acids and be made fit for absorption. It is easy to understand that a minute error of one sort or another could throw this delicate complex out of order and lead to profound change in the infant's digestion.

Once in the gut wall, ferments as well as the inorganic salts, or at least the ions of inorganic salts, play a part in building up and utilizing these elements of the proteids for the body's needs. Every one of the infant's body cells is busy forming new cells and must obtain its albumin from ingested food. There is no albumin reserve, as there are reserves for fat in the subcutaneous tissues, and for carbohydrate (as glycogen) in the liver. If fat or carbohydrate be fed in excess, provided the digestion endures the overfeeding, these stores are augmented. But if albumin be administered in quantities greater than can be utilized grave metabolic consequences ensue.

Life in some mysterious way is bound up with the presence of colloids in the cells and the life processes depend on the relation of these colloids to the salts, or those constituents of salts called electrolytes. Colloidal solutions of different sorts exist

within the cells and retain their identity. Through them, however, diffuse these crystalloids and electrolytes, dissociating and reassociating without precipitating, for this action is prevented by virtue of the colloidal nature. At one time the action of one ion is dominant, at another time that of another, but on penalty of death the cell must always at a given moment be ready to dominate the action of a given ion. The ingestion of the vast mass of bovine milk salts makes it incumbent on the one hand that the body rid itself of those it does not need, entailing excessive and unusual excretory processes, or on the other hand, that it utilize salts not designed either in quantity or quality for its specific cell functions. Much work has been done, and is now under way in Germany, on the effect of individual salts on the nursling's nutrition. Especially Langsten and Meyer, and Nothman, have dwelt on the power of sodium chlorid solutions to raise temperature and to increase weight, and of calcium to depress temperature and to decrease weight. We are taught that sodium salts exaggerate tetany and spasmophilia, cause rapidity of pulse rate, apathy, frequent stools, and the appearance of sugar in the urine.

Such is a very hurried and cursory glance at the fate of the individual food elements of the infant's dietary. It is neither wise nor necessary in such a review to burden ourselves with the formulae or the terminology of physiological chemistry. But in considering a few facts about the gastric digestion of milk as a complex of fat, albumin, sugar, and salts, we may with profit dwell a moment or two on the subject of colloids and colloidal action.

The recent work of Alexander and Bullova has thrown light on the vexed question of the differences of the curdling of cow's and human milk in the infant stomach. They have emphasized the facts that colloids are of two kinds, one known as reversible, the other as irreversible. The irreversible colloids are readily coagulated by electrolytes and when dried out do not redissolve. However, even a very minute amount of a reversible colloid can protect one of the irreversible colloids from coagulation, so that after desiccation it will re-dissolve. It is stated that as little as 1/10,000 of 1% of gelatine will protect a colloidal solution. It has been demonstrated that casein is an irreversible coagulating proteid, whereas, the so-called lact albumin is a reversible or protecting colloid. It is well known that one of the striking differences between cow's milk and human milk lies in the fact that in cow's milk there is about 3% of this irreversible colloidal solution of casein and only about 1/2% of the protecting, while in human milk the casein is 1% and the protecting lact albumin is about 1 1/2%. It is claimed that the effect of this fact on digestion is very clearly shown by the differences in the character of the flocculi of the renin precipitates of the two milks. Woman's milk forms a finely flocculated precipitate hardly visible, whereas cow's milk, being unprotected by reversible colloid, is very thoroughly and firmly coagulated. By the addition of a small amount of any protective colloid whatever, this protective action may be supplied. Many years ago Meigs, and following him Jacobi, advised the use of small amounts of gelatine or gum arabic to prevent the hard curdling of milk. Barley



water and especially dextrinized gruels and like solutions act as protective colloidal solutions. The success that follows the use of citrate of soda as a milk modifier is suggested by Alexander and Bullock to be due to the fact that citrate of soda acts as a protective colloid and not as an electrolyte. They have developed the fact also that colloidal protection is not confined to the action on casein but is important in maintaining fat emulsions as well, and that curds which contain much fat tend to cohere and have difficulty in passing the pylorus, and they have some doubt that complete peptonization can take place in the intestine except in the presence of an adequate quantity of protective colloid.

Observations, made in the wards of the Lane Hospital, indicate that the large, tough, leathery, casein curds appear in the stools as a result of the feeding of bacterially contaminated milk. Probably by the development of acidity a change in the electrolytes is produced which interferes with even the moderate amount of protective action that lactalbumins ordinarily exert, with the result that the child's digestion suffers. Whether this be the true explanation or not, the following facts convince the writer that the commonest cause of the appearance of casein masses in the stools is the ingestion of unclean milk. The fact that a number of infants being fed on the same milk almost invariably all show the curds at the same time. Under these circumstances a bacterial analysis of such cow's milk will show an inordinately high count. When such milk is replaced by milk known to have a low bacterial count, or by the same milk boiled for 20 minutes without any other change in the formula, the curds will disappear from the stools. In spite of the contention made by many German and many American writers that these hard lima bean-like masses were made up of soaps and intestinal secretions, Talbot has shown that it is possible to sensitize guinea pigs to cow casein and that the sensitized guinea pigs give the same reaction to solutions of such curds as they do to solutions of pure casein.

It has been questioned if the young infant can digest starch. Kerley has shown that a large proportion of infants have power to convert and utilize starches but that the power is relative. Many observers have shown that specific ferments, not ordinarily present, are elaborated when animals are fed unusual food elements and it seems proven that while the amount of pancreatic amylase present is almost negligible in the early weeks of a breast-fed infant's life that it can be increased by moderate starch feeding.

Neither cane sugar nor starch can be utilized by the infant economy, but through the intervention of ferments and by the addition of water must be broken up when laevulose and dextrose are formed and as such are absorbed by the intestine. Milk sugar, too, is a polysaccharid which needs be broken up, in this instance the products of hydrolysis are dextrose, and galactose. For these purposes the salivary amylase of infants is negligible and the bulk of carbohydrate digestion is performed in the small intestine by the pancreatic amylase. Starches are broken down and form maltose which like cane sugar is inverted into dextrose and levulose which are ab-

sorbed as rapidly as formed. All the complex carbohydrate must undergo these inversions for normally none of them are absorbed as such into the blood but must be transformed into hexose compound before they can be utilized. As much as a pound of sugar can be absorbed by the intestine in a short time, without increasing the sugar concentration in the blood, which is normally about 12 to 15 grains to the liter. In the liver these molecules of maltose are united to form glycogen. The amount of glycogen that can be stored in the liver is limited, and the amount of sugar stored in the blood and other tissues cannot exceed a certain concentration. Under such circumstances any excess of ingested sugar is transformed into fats for storage. Carbohydrates are of use to the animal organism as sources of heat and muscular energy. In the infant economy the heat supplying function is of course paramount.

The bacterial flora inhabiting the breast-fed nursing's intestine are simple and definite for different levels of the intestine. By their reaction to Gram's Stain the bacteria divide roughly into gram positive and gram negative (the blue and the red bacilli as the Germans call them). In the colon of the breast-fed the majority are slender, gram positive, curved organisms known as the bacillus bifidus which grows readily on highly acid media. There are always a few red stained gram negative coccal forms and a few thick big bacillus aerogenes capsulatus. The bacillus bifidus probably represents an organism that is found deep in the acini of the maternal breast which undoubtedly is the progenitor of the bacteria found in the nursing's gut and enters with the breast milk. The number of bacterial races is greater in the case of the bottle-fed, but the dominant stain is the gram negative colon bacillus ingested with the cow's milk which has been acquired because of fecal contamination. The type of the bacteria is not alone to be considered, but specimens of milk, rich in bacteria, are most likely to contain injurious organisms; such as the germs of typhoid, dysentery, and scarlet fever, streptococci, and staphylococci. The two last are almost constant contaminators of milk and almost as frequently present are the gas formers, sarcinae, and yeasts.

In spite of the differences in the flora, the work of Herter and other competent observers seems to indicate that putrefactive processes in the gut of the healthy bottle-fed baby do not exceed those occurring in the breast-fed infant's intestine and undoubtedly the chief damage done by bacterially-contaminated milk lies in the changes wrought in the milk as a food stuff, and not in infection that follows invasion of the gut by the organisms. The normal flora of the intestine are, for the most part, able to attack and destroy organisms that have passed the sterilizing ordeal of the gastric juice.

It is as foolish to attempt to deal with feeding cases without stool examination as it would be to treat adult kidney cases without urine examinations. The routine examinations of stools are as simply and as rapidly made as routine urine examinations. With the exception of from 2 to 6% of the ingested fat, an infant's stool is normally made up of intestinal secretions and excretions, sugar almost never, and proteid hardly more frequently appear in the evacua-

tion. Starch, when given to very young babies will always be wasted in the stools and this wastage may be taken advantage of to influence the evacuation in cases of constipation provided too much is not given. The stool examination divides itself roughly into naked eye and microscopic observations. If with the naked eye one notes a white or gray hard or crumbly stool it means fat waste, small white lumps mean soaps, green stools sugar or starch fermentation or rarely bacterial infection; brown stools result from starch waste or if the stools are very scanty from starvation, yellow brown evacuations looking like crude vaseline follow skimmed milk feeding. The normal stool is yellow, soft and smooth like mustard; a red coloration almost always indicates bacterial infection; small, soft pale lumps of uncolored faeces often erroneously called curds mixed with green stained mucus occur in times of starvation; large, white lima-bean-like masses are due to contaminated milk and are usually mixed casein, fat and soap.

In our microscopic examinations of stools we stain three smears on glass slides. No. 1 with Lugol's solution, No. 2 with Sudan iii, and No. 3 with Escherich's modification of Gram's stain. In the first, if free starch be present it will be determined by the blue iodine starch reaction, in the second free fat and fatty acids, if present, are stained brilliant red by the Sudan, and the third tells whether the bacteria are normal to the infant's intestine or are pathogenic invaders. Fritz Talbot advises that in the study of fat digestion one uses a Fuschin stain as well as Sudan. The latter does not stain neutral fats, but stains fatty acids brilliant red, and soaps dull red, while the Sudan though it does not stain soaps, stains fatty acids indifferently and dyes the neutral fats a bright red.

The reaction of stools to moist litmus paper should always be observed; very acid stools almost always mean excess of sugar in the food, the evacuations of a normal breast-fed child give an acid reaction while those of the healthy bottle-fed baby give an alkaline reaction. When a stool is exceedingly alkaline in reaction it means an excess of proteid in the food with albuminous putrefaction. A study of the odor of stools may give valuable information. A butyric odor usually means fat decomposition; a lactic or an acetic odor, carbohydrate fermentation, while the stools of proteid decomposition have a disagreeable putrefactive smell.

Among the first American physicians to attempt rational modification of milk was Meigs of Philadelphia. His method was based on the idea that mother's milk was the optimum for the infant, and that cow's milk should be made identical with it. This he attempted to do by dilution and the addition of cream and sugar. In the light of what was then known of physiological chemistry this plan seemed to promise a fairly reasonable approximation to woman's milk. In the hands of Meigs and his followers it succeeded so much better than the rule of thumb methods previously in vogue, that it immediately impressed the profession and became the cornerstone of infant feeding. Following this, American physicians attempted to devise a plan by which milk could be more accurately modified. One

of the reasons that the method was not more successful was that the foremost apostles of this doctrine, were so impressed with the principle that guided Meigs that they laid too much stress on the need for high fat percentages in infant food mixtures, for the reason that human milk was supposed to be rich in fat. However, much good followed the interest thus aroused in methods of feeding. Another reason for failure was the insistence on too frequent feedings; as many as eight to ten in twenty-four hours were advised. This vicious plan was adopted as a guide even to the number of daily feedings a breast-fed baby should have, to the detriment of the nursing mother and the production of much indigestion in the infant. It can be said in passing that much of the colic and discomfort which affect breast-fed children during the first month and many of the so-called curdy stools which occur at this period are due solely to an excessive number of feedings. A third drawback to the percentage system as then taught was that its devotees dwelt so insistently on the value of very slight modifications in the proportions of fat, proteid and sugar that it was almost impossible for a physician not a trained mathematician, to follow the literature on the subject. Since that time many simple methods for determining percentages have been devised and less stress has been laid on minute variations. One other objection to the plan was that many of the formulae called for market cream which is for the most part a mixture of bacteria, starch, tallow and milk with more or less boric acid or formalin. But by far its greatest defect was the fact that its proponents in devising formulae considered neither nutrition nor metabolism and much of the disturbance created by the food of bottle-fed infants arises from metabolic disturbances which in turn are responsible for a vast amount of seeming indigestion. There is no question but that the principles of percentage feeding should always be kept in mind, as a guide to the concentrations of food best endured by artificially-fed infants, but to be guided merely by a consideration of the percentages in a food mixture without accurately checking up the albumin and energy needs of the child may lead to failure.

Although the followers of the percentage system have always taught that milk curd was most difficult of digestion, proteid in reality is the proximate principle in milk mixtures which seems to give the least trouble. However, one would be loath to accept the teachings of some of the Germans, that an excess of proteid in an infant's diet can always be ignored. Undoubtedly, some infants are severely injured by excessive proteid feeding. In such instances it is usually the casein that is troublesome, and if such children are given whey mixtures, low in casein, they will immediately improve. The clinical picture is one of an uncomfortable child who does not vomit, but has definite gastric distress; in many instances nurses and mothers interpret this distress to be hunger with the result that the child is still further overfed. The stools of such infants are pale yellow or white, rather sticky, with a putrefactive odor quite unlike the stench of the fatty acids contained in the stools of fat indigestion. By this odor also they can be differentiated from the inodorous



white soap stools so often the cause of constipation in fat overfeeding.

There is undoubtedly virtue in the principle of maintaining a balance between the fat and proteid proportions in the milk, and mixtures containing twice as much fat as proteid, providing they are given in proper dilutions and are reinforced by proper amounts of proteid in cereal decoctions (especially if the latter be dextrinized) are well tolerated and children thrive on them.  $2\frac{1}{2}\%$  of fat and  $1\frac{1}{4}\%$  of proteid with 6% of carbohydrate is a good combination, if the 24-hour ration is proper. The top 16 ounces of the average bottle of certified milk will contain approximately twice the fat of the whole milk or between 7 and 8%. The same 16 ounces will run about half so high in proteid. The difficulty with this mixture lies in the fact that as the infant grows its proteid requirements outrun its fat needs, and the child gets too much fat and too little albumin. However, in the earliest months of life such mixtures are not at all inappropriate.

For many years Jacobi of New York was the only eminent pediatricist in this country who strenuously objected to what he called "The Gospel of Top Milk." He has clung persistently to milk dilutions, but he never went so far as some of the Germans in the matter of neglecting casein digestion, and we find that in many of his earlier writings there are discussions of the use of gelatin and he has always insisted on the value of cereal decoctions as milk modifiers; an interesting demonstration of how shrewd clinicians often anticipate scientific demonstration. As has been said, both gelatin and cereal decoctions are now known to be protective colloids which insure the proper coagulation of cow's milk in response to rennin.

While the Americans were working, attempting to approximate cow milk mixtures to mother's milk, Voit and Rubner had worked out the food needs, the albumin needs, and the heat demands of the adult, and had investigated the caloric values of different foodstuffs. Assuming as the unit of energy value the large calorie, that is the amount of heat necessary to raise one liter of water through one degree centigrade, these physiologists showed that there was a specific heat value for each type of food, when burned in the calorimeter. The heat value of one gram of fat was determined to be 9.3 calories. Equal amounts of proteid of carbohydrate gave off but 4.1 calories per gram so these figures were taken by physiologists to express the energy values of the respective foodstuffs.

There now arose a German school of pediatricists, among them being Kamerer, Czerny and Kellar, who attempted to determine the food needs of infants. From their work they laid down the axiom that an infant in the first three months of its life needs from 100 to 110 calories per kilogram per day, that is between 40 and 45 to the pound. In the second three months the demands were found to run between 35 and 40 calories per pound and after the sixth month 32 calories per pound of body weight were found sufficient. It was further shown that a thin baby wastes body heat and has need of a higher caloric content in its food than a fat child of equal weight.

(To be concluded in the November issue.)

## A CASE OF CARCINOMA OF THE APPENDIX.

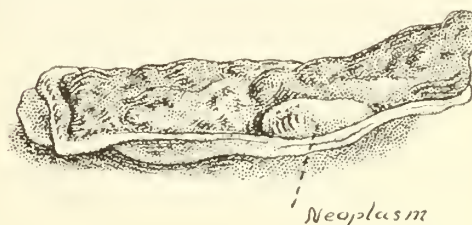
By H. A. L. RYFKOGEL, M. D., San Francisco.

Though many cases of carcinoma of the appendix have been reported, it still seems proper to put additional cases on record.

Miss S., referred to me for operation by Dr. J. W. Shiels, on June 24, 1910, age 22, American, unmarried, states that three years ago she enjoyed good health. Since then she has suffered severe pain before and during her menstrual flow, which though regular, is scant at the beginning but abundant at the end. In March, 1910, an additional pain in the right side appeared during her period, and has since remained in the intervals as well. Frequently sharp pains shoot upward toward the navel from this area of discomfort. She finds she is much more comfortable when her right leg is flexed upon her abdomen. Sitting up is associated with an increase of pain, while the prone position gives relief. She has lost about ten pounds in three months. She has no cough, no fever, no headache, is highly nervous, habitually constipated and has a slight vaginal discharge. Her family history is unimportant. At the beginning of her menstrual difficulties, she suffered from attacks of dyspepsia, which occurred always at the time of menstruation, and were so severe that she was obliged to go to bed.

General examination shows nothing noteworthy. At McBurney's point there is an area acutely sensitive on pressure. There is a definite muscular rigidity over the whole quadrant. Vaginal examination shows uterus and tubes to be very sensitive but is otherwise negative. On July 29th, I removed a somewhat

Fig. 1.



Appendix opened longitudinally, exposing the mucosa and the neoplasm within the lumen.

thickened and adherent appendix about three inches long. Cysts with thin walls were found on both ovaries and resected. The result of the examination of the appendix is as follows:

The specimen consisted of an appendix about 6 cm. in length, which had been opened longitudinally before delivery to laboratory. At about the middle third of the organ a neoplasm was found, firm to the touch, pale pink in color, about the size of a white bean and microscopically did not seem to invade the muscular tunics of the organ. The mucosa was slightly congested above and below the new growth. No enteroliths were present. Fig. 1 shows the organ as opened longitudinally exposing the neoplasm within the lumen.

A section was taken through the tumor at its distal end comprising a portion of the neoplastic mass as well as the uninvolved mucosa and underlying in-

tegers of the appendix. Sectioned in celloidin and stained in hemotox and eosin, this preparation gave the following microscopic findings, as illustrated in Fig. 2:

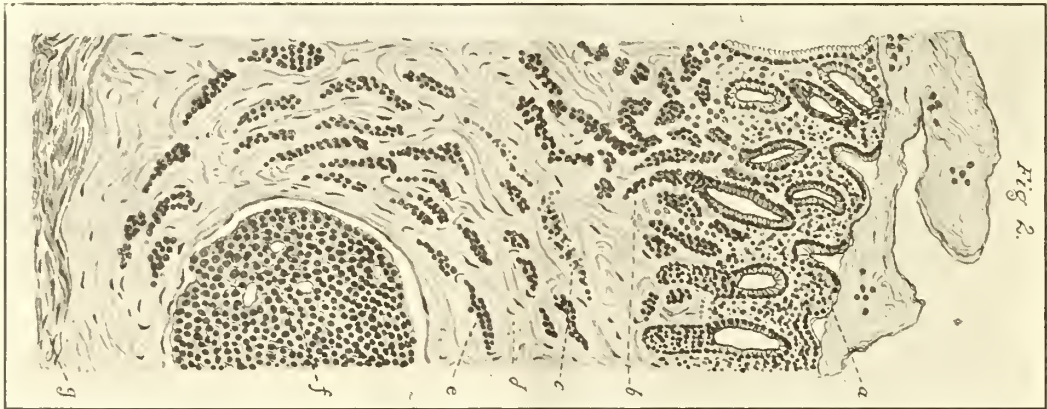
The epithelial layer on the free surface of the mucosa is deficient in places, as shown at **a**. Most of the glands conform to the normal type, but occasionally their epithelium changes from the cylindrical to the cuboid form, as indicated by **b**. These cuboid cells follow in a general way the lymph spaces, as shown at **c**. In the neighborhood of the new growth the areolar tissue has practically disappeared being supplanted by dense fibrous tissue, this condition is pointed out by **d**. In the interstices of the new formed fibrous tissue collections of lymphoid cells are found, as at **e**. Deeper in the preparation well circumscribed areas of polygonal cells are met with, as indicated by **f**. The neoplastic cells do not invade the musculature of the organ, the latter being shown at **g**.

In other sections examined the lymph follicles were found well preserved, and the areolar tissue present without any neoplastic involvement.

been about as long as a bean. Extension to the cecum has been seen in very few of these cases.

LeConte has reported glandular metastases in one case. The appendix was extensively involved, and invaginated into the cecum, and the growth involved the cecal wall at its junction with the appendix to a very limited extent. At a second operation performed shortly after the first, the cecal part of the ileum and the ileo cecal glands were removed. Two out of eleven glands showed metastases. The majority of these little tumors show a definite capsule. They are located at the tip in one-half of the cases.

The average age of the patient is 29, and they are much more frequently found in the female than in the male. Their occurrence bears a definite relation to chronic inflammation and obliteration of the appendix, thus in the Mayo series, although cancer was found only once in each 227 cases of all kinds, it was found once in each 53 partially and totally obliterated appendices. Clinical symptoms have at times been absent, and the growth found accidentally after the appendix had been removed in the course of an operation undertaken for other purposes. More



Microscopical section of neoplasm of appendix.

#### Conclusion: Carcinoma.

In recent years careful examination of appendices removed at operation, has shown appendical cancer to be a common disease.

The largest series has been that of the Mayos, reported by McCarthy and McGrath, who found 22 instances of these neoplasms in 5000 specimens.

The first case was reported by Merling in 1838, and since then nearly 200 cases have been placed on record. The variety has usually been carcinoma, although a few cases of sarcoma and a few of endothelioma have been reported. The type of carcinoma in the greater majority has been the spheroidal celled, although a few cases of the columnar celled have been observed. The assertion has been made that the latter usually occurs in patients over 50, and is very prone to extend to surrounding structures and form metastases. The spheroidal celled type on the contrary, occurs in young people and resembles the basal celled cancers of the skin in its very slight tendency to metastasize, and its extraordinary slow growth, the largest found having been about the size of an ovary and varying from that to microscopic size. Usually these found have

usually, symptoms are present, but differ in no way from those of chronic appendicitis, and no case has been reported in which pre-operative diagnosis of cancer has been made. In three-fourths of the cases a surgical diagnosis could not be made after the abdomen was opened, because the growth had not grown through to the serosa.

The spheroidal celled carcinomata are unique among those of the intestinal tract for their slight tendency to invade the surrounding tissues, and practical absence of metastatic tendency. The prognosis is therefore excellent, recurrence having practically never occurred. No satisfactory explanation of this characteristic of appendiceal carcinoma has been offered.

Ribbert has suggested that the process is due to chronic inflammation snaring off epithelial cells which then proliferate in such a way as to resemble carcinoma.

It has been claimed that in some cases the picture is due to an infectious lymphangitis, while others attribute the apparent cessation in growth of these neoplasms to the vestigial character of the appendix, and still others assert that the growths slough early and spontaneous cure occurs.



## TENTATIVE CLASSIFICATION OF EXCEPTIONAL CHILDREN.

By MAXIMILIAN P. E. GROSZMANN, Pd. D.,  
Plainfield, N. J., May, 1909, Educational Director of the National Association for the Study and Education of Exceptional Children.

### A. Normal Children.

(Those who are in accord with the norm, or standard, of human nature.)

#### 1. Typical Children.

(Those who conform to the average human type, representing the present stage of civilization.)

#### 2. Pseudo-atypical Children.

(Those who only seemingly deviate from the average human type.)

##### a. Children Whose Progress in School was hindered by:

1. Change of schools;
2. Slower rate of development, without atypical retardation;
3. Temporary illness;
4. Slight physical difficulties, such as lameness and minor deformities, slightly impaired vision and hearing, adenoid vegetations, etc. This last class is similar to Group 2, of the Pathological Classes, Subnormal Group; only that it represents **retarded** instead of **arrested** development.

##### b. Children of Unusually Rapid Development, without genuine (pathological) precocity ("bright" children).

##### c. Children Who are Difficult of Management. Naughty, troublesome, spoiled children, without genuine perversity.

##### d. Neglected Children.

Pseudo-atypical children may be rapidly restored to normal equilibrium.

#### 3. Atypical Children Proper.

(Those who deviate from the average human type.)

Hereditary, congenital, and environmental causes.

##### a. Neurotic and Neurasthenic Children.

Over-stimulation and precocity. Genius. Irritability. Excessive imagination and lack of mental and emotional poise. Hysteria (Dementia Praecox). Lack of concentration. Negativism. Contrariness. Perverse tendencies. Sexual precocity. Fears and obsessions. Defective inhibition. Tic. Motor disturbances. Vasomotor, sensory, and trophic disturbances.

##### b. Children of Pathologically Retarded Development.

Impaired conceptual ability due to retarded brain development. Physiological retardation of growth rate. Special physical causes: Chronic catarrh, chronic difficulties of nutrition, serious chronic affections of vision and hearing, venereal infection, etc.

Any of these classes, through neglect or adverse environmental influences, may drop down in the scale of development, into

lower classes. In other words, the individuals composing them, may lose their normal characteristics and degenerate into permanent defectiveness. It is a matter of potentials and their direction. On the other hand, having the normal potentials, atypical and pseudo-atypical children may be restored to normal equilibrium.

### B. Subnormal Children.

(Those whose potentials are incomplete, or underdeveloped.)

#### 1. Defective Children.

Hereditary and congenital causes.

Epileptics, blind, deaf and dumb, deformed, paralytics, crippled, etc.

These children can never attain the perfect norm of human nature, as their potentials are incomplete.

#### 2. Children of Arrested Development.

(Acquired abnormality or defectiveness.)

##### a. Pathological Classes.

Children born apparently normal, but having their development checked by:

1. Hereditary causes, manifesting themselves at certain developmental periods;
2. Special causes, as diseases, fright, accidents, etc.

The arrest of development may be only partial, as in the case of children deformed by accident; then, there will be mainly a condition of incompleteness, as in Group 1, Defective Children.

##### b. Submerged Classes.

Environmental influences have prevented them from attaining full maturity.

Children of arrested development will remain essentially subnormal, no matter how well they may be educated within their limits.

#### 3. Children of Rudimentary or Atavistic Development.

The primitive type, representing mental, moral and social instincts and activities on the savage, barbarian, or generally uncivilized level.

Primitive races.

Atavistic individuals. These approach the abnormal level. They represent a reversion of instincts and capacities in spite of being born from apparently normal parents.

### Groups A and B Constitute Human Society.

### C. Abnormal Children.

(Those who deviate from the norm, or standard, of human nature.)

Hereditary and congenital causes.

Cretins, cretinoids; microcephalics, macrocephalics, hydrocephalics; idiots, idio-imbeciles, imbeciles and feeble-minded; insane; criminals; moral imbeciles and moral perverts.

Abnormal children stand outside of human society and require custodial or institutional care permanently.

### DEFINITIONS.

(Standard Dictionary.)

Norm: A rule or authoritative standard.

Normal: According to an established law or principle; conformed to a type or standard; regular or natural.

Abnormal: Deviating from the natural structure, condition, or course; unnatural.

Type: One of a class or group of objects that embodies the characteristic of the group or class; an example, model, representative, or pattern, as of an age, a school, or a stage of civilization.

Typical: Having the nature or character of a type.

### MENTAL TEST.

#### PHYSIC-PSYCHOLOGICAL AND MENTAL TESTS FOR CHILDREN.

By MAXIMILIAN P. E. GROSZMANN, Pd. D.,  
Plainfield, N. J.

Arranged for four periods of child age, as based on a revised Culture Epoch division of development.

Primary Period: (the "human animal"), meaning the human species as differentiating itself from the lower creation; omitting babyhood, this period covers the years from 3 to 5.

Elementary Period (race period), meaning that race characteristics are evolving from the general human potentials. Age, 6 to 11.

Intermediate period (nation period, pubescent period). Age, 12 to 15.

Advanced Period (family and individual period). Age, 15 and up.

#### Primary Period.

Physic Psychological Tests: Special Senses, Visual: Distance and Accuracy:

1. Snellen's Test Cards: pictures.
2. Prof. Cohn's E-fork.

Color:

1. Matching colored worsted; primary colors only.
2. Naming 6 primary colors: red, orange, yellow, green, blue, purple (violet). The underlined names (as well as colors themselves in (1) are the first to be distinguished and named).

Aural: Distance and Direction: Cf: Physiological tests. Child (blindfolded) should be asked to follow the sound of a bell, or a call, now loud, now low, as in a game.

Testile: Tests in identifying ball, key, paper, goods, etc.

Smell: Recognizing soap, fresh bread, flowers, etc.

Taste: Recognition of sugar, salt, bread, fruit.

Mental Tests: Naming familiar objects in room, outdoors, from pictures.

Note facility, range, substitution.

Counting:

1. Put two heaps of sticks before the child, one containing 3, the other 12 sticks. Which is the larger heap?
2. Counting as far as child can count.
3. Abacus: (5 rows of 10 beads each). Move beads in each row (different colors) one by one and count at the same time.

Following Direction: Give child a simple direction, such as: Hand me the book from the table! or, open the door! and observe with what willingness and promptness it is carried out.

Imitation: Make some motion with your hand,

like waving; or, take a hammer and strike a nail, and have child repeat the action.

Imaginative Imitation: Tell child to show in what manner mother cooks breakfast; or father smokes, or chops wood; or the gardener sows his seed, etc. Take example from child's natural circle of observation.

Story Telling:

1. Have child repeat a story, as Red Riding Hood (it must be new to the child), as told by the experimenter.
2. Give doll, or play-horse, to child. Have him play with it and tell imaginative happenings.

Judgment:

1. Simple picture cut into four squares; reconstruct.
2. Which of two lines is the longer? (Binet.)

Expression:

1. Drawing of conventional and life forms through ground glass.
2. Draw freehand, a man, a horse, a house, from memory.
3. Model some familiar form (ball, bird's nest, flower pot) from memory.
4. Draw a pond, with trees standing in front and back.
5. Sing a song.
6. Recite some piece of poetry.

#### Elementary Period.

Physic-Psychological Tests: Visual:

Distance and Accuracy: Snellen's Test Cards.

Color:

1. Matching of primary colors, and at least one tint and one shade, in colored papers mounted on cards to be fitted together.
2. Naming these colors, also light and lighter, dark and darker.

Visual Memory:

1. Holding up to child's eyes colored papers (or objects, like balls) in the following order:
  - a. Red, blue, yellow;
  - b. Red, blue, green, yellow;
  - c. Red, green, orange, blue, yellow;
  - d. Red, orange, green, yellow, blue, violet; each series about 10 seconds, and having child repeat order in which colors were seen.
2. Holding up familiar objects and having child repeat names in order given:
  - a. Ball, book, chalk;
  - b. Fork, knife, spoon, napkin;
  - c. Hammer, bottle, chalk, key, ruler;
  - d. Combine a and b.
  - e. Combine c and b. The different series correspond in a measure with the ascending ages of the child.

Aural:

1. For distance and direction, use same tests as in Primary. But at this age have the child (blindfolded) tell:
  - a. Character of sound (bell, tapping, knocking, scraping, words spoken, etc.);
  - b. From where the sound comes;



c. How far away it is. This latter experiment should include discrimination of distance with different degrees of loudness.

2. Have child repeat tone sung, or produced on instrument.

3. Discrimination of higher and lower tones from standard, c. Each tone is to be individually compared.

d e g b c f a d c f

4. Sense of rhythm (hearing and motor).

Tapping by experimenter and child in unison, at various rates of speed; tapping by child alone after standard given memory. Eventually use metronome.

5. Memory: Tell (or write) from memory the following selection after it has been read by experimenter:

A Corn Field: A corn-field in July is a hot place. The soil is hot and dry; the wind comes across the lazily murmuring leaves laden with a warm sickening smell drawn from the rapidly growing corn. The sun, nearly vertical, drops a flood of dazzling light and heat upon the field over which the cool shadows run, only to make the heat seem more intense. (Garland.)

(Mark the number of memories.)

(Cf test in writing and reading)

#### Tactile:

1. Simple tests in identifying objects (pencil, brush, ball, knife, coin, etc.) and solids (ball, cube, cylinder).

2. Singles and double needle-points, using distances of two to one inch, pricking skin in various body areas, to recognize points. Or use algometer.

#### Smell:

1. Elementary tests with ordinary strength of vinegar, ground coffee, soap, earth, fruits, flowers, perfumes, etc.

2. Graduated tests for acuteness: Use graduated extracts, of musk, violet, ammonia, orange, etc., varying between .001% and 100%.

#### Taste:

1. Elementary tests with ordinary strength of sugar, quinin, vinegar, salt, coffee, bread, chocolate, fruits, vegetables, etc.

2. Graduated tests for acuteness: Use graduated solutions of sugar, quinin, vinegar and salt, varying between .001% and 100%. Mark first traces of sweet, bitter, sour, salt.

#### Location:

1. Point out some object in room. Then blindfold child and ask him to walk towards the object.

2. Have the child walk several times from door to window; then blindfold him and have him retrace his steps in that way (muscular memory).

#### Mental Tests: Counting:

1. Counting as far as child can count.

2. Counting backwards, 10-1.

3. Counting by 2's as far as child can go.

4. Counting backward by 2's: 10-2, 20-2.

5. Counting by 10's to 100.

6. Counting backward by 10's: 100-2.

7. Counting by 6's as far as child can go, at least 50.

8. Counting backward by 5's: 50-5, 100-5.

9. Counting by 3's, to 30, 60, 90, 120.

10. Abacus:

a. Move red beads 2 by 2.

b. Move orange beads 3 by 3. How many left?

c. Move yellow beads, 1, 2, 3, 5.

d. Move green beads, 4 and 4. How many left?

e. Divide blue beads in half. How many in each half?

f. How many times can you move 2 red beads?

Five times 2 is?

Following Direction: Give the child some direction which would involve two different actions successively, e. g., tell the child to lock the door and bring you the key; or, to raise arms over his head and then lower them behind his back, etc.

#### Association:

a. Presentation of familiar objects (apple, knife, pocket book). Child is asked to dictate to the experimenter the names, of other objects coming to his mind as suggested by the object presented, as fast as possible, in three minutes.

b. The same exercise, except that the name of a familiar object (book, mother, house) is mentioned to the child.

c. Genus—Species: Tell an animal, plant, food, article of clothing, piece of furniture.

d. Part—Whole: Tell of what the following is a part: an arm, a sleeve, a drawer, a leaf, a room.

e. Opposites: What is the opposite of bad, short, little, poor, well, thick, full, few?

f. Qualities: Tell me something that is high, cold, new, smooth, red, round, clean, bitter, heavy.

g. Activities: Tell me the name of something that walks, rolls, flies, barks, swims.

#### Reading:

1. Reading of graded passages from some good series of readers, First to Fifth Reader. Note facility, expression, understanding, substitution, etc.

2. Have child repeat orally what he has read.

#### Writing:

1. Dictation of graded passages from same set of readers.

2. Have child repeat in writing what he has read, as nearly as he can reproduce it.

#### Motor Co-ordination:

1. Walking along straight board or line.

2. Threading of needles very coarse to medium.

3. Tapping (Cf. Rhythm Test).

4. Tying and untying of strings (shoestrings).

5. Marking with cross, in lead pencil, 100 squares in their centers. Squares  $\frac{1}{2}$  in. Note accuracy and time.

6. Striking graded pegs with metal pencil (electric contact). Note accuracy and speed.

By repeating these tests up to 10 times in succession, the effect of study and practice can be studied.

#### Judgment (Experience):

1. Muscular and optical illusions:

a. Two pieces of wood of different size but equal weights.

b. White circle on black background; which appears larger? (Circle of about 2 inches observed from distance of 10 feet in good illumination.)

2. Dissected pictures:

a. Simple picture cut into 8 oblongs.

b. Simple picture cut into 12 pieces of different forms. (This test may be done imperfectly by some children of this

stage; it ought to be done perfectly in the next stage.

3. Formboard: 12 different geometric forms to be fitted into their grooves. Note time and accuracy.

This test should be tried with elementary children, but will be more perfectly done by children of next stage.

#### Expression:

1. Draw, on transparent slate, life forms after patterns.
2. Draw, freehand, a man, a horse, a house, from memory.
3. Paint with ink, or watercolor, an apple, a flower, a vase, a model.
4. Model some familiar form (ball, bird's nest, flower pot) from memory.
5. Draw the following: an oblong pond with trees standing in front and back.
6. Draw the following: on the side of a street a shoemaker is at work at his bench, on the opposite side is a carpenter building a house.
7. Child to sing a song he knows, eventually with accompaniment.
8. Child to play a piece on whatever instrument he can play.
9. Child to recite any piece of poetry he has learned and happened to remember.

#### Aesthetic:

1. Color preference.
2. Favorite flower.
3. Favorite song or musical piece.

#### Intermediate Period.

##### Physic-Psycological Tests:

Vision: Distance and Accuracy: Snellen's Test Cards. Tests for astigmatism.

Color: Matching of intermediate colors and naming them as accurately as child can describe them.

##### Visual Memory:

1. Drawing successively 10 straight lines after standard (4 in. long). The standard is drawn on top of paper, and is removed from sight by folding under, after being exposed 5 sec. Each copy is likewise folded under before next is attempted. Mark extremes and m. v.
2. Momentary exposure of 12 familiar objects successively, the child writing down the names after all objects have been shown. Mark completeness and order.

First Series: Hammer, ball, bottle, chalk, fork, bell, key, clock, book, mat, ruler, box.

Second Series: Newspaper, rubber eraser, pack of cards, hat, pad, plane, knife, worsted, comb, scissors, picture, envelope.

3. Exposing familiar words to be written down from memory in the order shown, after having been exposed 5 times (underlined words in red ink):

First Series: Cow, room, ship, queen, hammer.

Second Series: Road, glass, board, bell, pencil, water.

Third Series: Garden, stone, grass, dog, bottle, hill, wall.

Fourth Series: House, statue, paint, ink, door, picture, cloud, tree.

Fifth Series: Paper, roof, sky, pen, leaf, hammer, cow, ship, bottle, door.

##### Hearing:

1. Recalling and recognizing single tone (use special string instrument).
2. Discrimination of higher and lower tones as in 3, Elementary. Standard c: b, d-sharp, b-flat, d, a, e, g, b, c-sharp.
3. Consciousness of harmony and discord (selected chords).
4. Memory of spoken unrelated words: Familiar words by the experimenter to be repeated orally, or in writing, in order given. Mark completeness, order, time. Present 5 times.

First Series: Room, sky, stone, ink, garden.

Second Series: Queen, water, pen, wall, pencil, glass.

Third Series: Tree, grass, door, board, road, cow, ship.

Fourth Series: House, cloud, leaf, paint, roof, picture, dog, hammer.

Fifth Series: Leaf, paper, hammer, dog, bottle, statue, picture, hill, roof, paint.

5. Memory of spoken related words. Method same as in 4.

First Series: Home, father, city, business, office.

Second Series: Mother, dinner, meat, fork, napkin, dishes, table, chair.

Third Series: Country, woods, tree, grass, moss, flowers, grass, picnic.

Fourth Series: Water, lake, river, ocean, steamer, trip, England, London, Germany, Berlin, Kaiser, America, Star-spangled banner.

6. Memory of word picture. The purely ear-minded child will respond to the reading of the selection by experimenter; another method is to have the child read the selection aloud, thus combining visual and motor memories with the aural (hearing his own voice). Selection may be read twice, or even three times in succession, and a combination of both methods is allowable if response to one is unsatisfactory. Child to repeat, or reproduce in writing.

Ploughing: All day long the ploughmen on their prairie farms have moved to and fro on the wide level field through the falling snow which melted as it fell, wetting them to the skin—all day, notwithstanding the frequent squalls of snow, the crippling, desolate clouds, and the muck of the furrows, black and tenacious as tar.

Under their dripping harness the horses swung to and fro silently, with that marvelous uncomplaining patience which marks the horse. The ploughman behind his plough, the snow lay on his ragged great-coat, and the cold, clinging mud rose on his heavy boots, whistled in the very beard of the gale.

As the day passed, the snow, ceasing to melt, lay along the ploughed land and lodged in the depth of the stubble, till on each slow round the last furrow stood out black and shining as jet between the ploughed land and the gray stubble. (Garland.) Mark number of memories.

Touch: Tests in identifying objects and solids (blind-folded) as pen points, small keys, marbles, various fabrics, flat and solid geometric figures as triangles, ovals, vases, etc.

2. Single and double needle-points, using distances of from 1 to  $\frac{1}{4}$  in., testing various body areas. Or use algometer.

Smell: Acuteness. Use graduated extracts as in Elementary tests.

Taste: Acuteness. Use graduated solutions as in Elementary tests.

Location: Memory: visualization. Draw ground floor of your school-room, or of some room in your dwelling house (bedroom, dining room, etc.) from memory.

#### Mental Tests.

##### Counting:

1. Count as far as you can count. After 200, count by 10's; after 300, count by hundreds; after 2000, count by thousands.
2. Count backward, 100-1.
3. Count backward, by 2's, 100-2.
4. Count backward by 3's: 12-3, 30-3, 90-3.
5. Count backward by 5's: 200-5.
6. Abacus: Make on left side of abacus, 8, 12, 18, 25, 31, 39, 44, 50.



## Association:

1. Presentation of familiar object; child is asked to write down the names of other objects or ideas coming to his mind as suggested by the object presented, as fast as possible, in three minutes.
2. Same exercise, except that the name of the object is mentioned to the child without the object being shown.
3. Genus—Species: Tell a form of land; kind of building; occupation; game; exercise.
4. Part—Whole: Tell of what the following is a part; a seam, a handle, a wall, a signature, a title.
5. Opposites: What is the opposite of: bad, inside, slow, short, little, soft, black, dark, sad, true, dislike, poor, well, sorry, thick, full, peace, few, below, enemy. (Nosworthy list.)
6. Qualities: Tell something that is: high, soft, cold, new, smooth, red, round, windy, clean, bent, wooden, deep, empty, loose, narrow, bitter, level, stale, oily, heavy, woolen. (Nosworthy list.)

Following Directions: Give child some direction which would involve three or four different activities in succession, e. g., tell the child to place a book on the desk; then to walk to the window, to open (or close) it, and then to bring the book back to you, and open it on page 105.

## Reading and Composition:

1. Reading of graded passages from some good series of readers, Sixth to Eighth, and of simple classics. Note facility, expression, understanding, etc.
2. Have the child write a reproduction of the passage read. (This exercise must not be confused with the word picture test.)

Concentration: Striking out 100 A's scattered through block of letters.

By repeating this test 10 times in succession, the effect of habit and practice can be studied. Accuracy and speed are noted.

## Motor-Co-ordination:

1. Striking 100 dots with pencil successively. Dots are  $\frac{1}{2}$  in. apart, arranged in ten rows of ten each.
2. Striking graded pegs with metal pencil (electric contact).  
Note accuracy and speed. Repeat 10 times for effect of habit and practice.

Method of Thinking: Presentation of familiar object (knife, fork, penny, ball, flower, etc.): Child tells what primary association is formed, that is to say, of what the child thinks first when object is seen (idea of object as such, or sound of spoken word, or image of written or printed word, its spelling, letter forms, color of object, etc.)

## Judgment (Experience):

1. Muscular Illusions:
  - a. Pencil point between twisted fingers.
  - b. Eight weights of different sizes, but equal weights.
2. Optical Illusions (cf. James, Psychology, 11, 232, ff.)
3. Connect 100 dots ( $\frac{1}{2}$  in. apart, arranged in 10 rows of 10 each) with continuous line without touching the same dot twice or crossing over. Repetition introduces effect of habit and practice. Time.
4. Simple picture cut into 12 pieces of different forms. Time.
5. Set of cubes presenting six different pictures. How many are recognized and put together? Time.
6. Jig-saw puzzle of not more than twenty-five pieces. Time.
7. Formboard.
8. Solving of some puzzle or riddle, e. g., several geese are walking along the road in single file. One walks ahead of two, one walks behind two, and one walks in the middle. How many geese?

9. A practical question as to what the child would do under certain circumstances, e. g., if he would see another child walking unconsciously near a steep precipice where another step might cause it to fall off, and yet if frightened by some sudden call, the child may be in the same danger.
10. A practical test, such as placing a book so near the edge of the table that an inadvertent motion would send it to the floor; or, the playing of some game of cards in which judgment is needed, like "building" in Casino, or a game of Hearts.
11. Games like Twenty Questions, City and County, etc., also offer valuable opportunities for tests of judgment, concentration, etc.

## Expression:

1. Draw freehand, a man, a horse, a house, from memory. At this stage, some specific man, (father), or horse, (the grocer's or the family horse), or house (residence, or schoolhouse) should form the task.
2. Paint, in watercolor, some flower, vase, landscape, from memory, or by way of invention and composition.
3. Model, in clay, some motive of ornament.
4. Draw an oblong pond, with trees on opposite sides, front and back.
5. Shoemaker and carpenter, as in elementary test.
6. Child to sing a song he knows.
7. Playing on whatever instrument he can play.
8. Recitation of memorized piece of poetry or oratory.

## Aesthetic:

1. Color preference.
2. Favorite flower.
3. Favorite song or musical piece.
4. Favorite poem or story, literary piece, author.

## Advanced Period.

## Physic-Psychological Tests: Visual Memory:

1. Momentarily presenting sheet containing rectangles of same size, but different colors and in different positions. Upon withdrawing sheet, child is to draw a diagram of the positions and the names of the colors in their proper places. Repeat three times.
2. Same test as under (3) Intermediate. Children of this age should be able to repeat Fifth Series without mistake.
3. Exposing nonsense syllables in same way as familiar words in previous tests:  
First Series: Juc, ver, dil, zec, nis.  
Second Series: Lab, noh, ris, lup, fim, tup.  
Third Series: Zit, tal, gip, fod, kan, mas, zam.  
Fourth Series: Arb, cul, tab, sar, sal, cof, ler, hek.  
Fifth Series: Bom, wes, rar, nis, zec, lup, tup, noh, hek, lab.
4. Estimates of distances, as to comparative length. Younger pupils may be able only to say that one distance is greater than the other; older ones may estimate actual length in feet, miles, rods.
5. Estimate of heights of various objects. Same method as in 4.
6. Estimate of sizes of various objects. Same as before.

## Aural:

1. Recalling and recognizing chords (selected chords).
2. Memory of word picture, as in (6) Intermediate:  
Early Dutch Fireplace Scene: To have seen a numerous household assembled around the fire, one would have imagined that he was transported back to those happy days of primeval simplicity which float before our imaginations like golden

visions. The fire places were of a truly patriarchal magnitude, where the whole family, old and young, master and servant, black and white, nay, even the cat and dog, enjoyed a community of privilege, and each had a right to a corner. Here the old burgher would sit in perfect silence, puffing his pipe, looking into the fire with half-shut eyes, and thinking of nothing for hours together; the good wife, on the opposite side, would employ herself diligently in spinning yarn or knitting stockings, listening with breathless attention to some ole crone of a negro who was the oracle of the family and who, perched like a raven in the corner of the chimney, would croak forth for a long winter afternoon a string of incredible stories about New England witches, grisly ghosts, horses without heads, and hair-breadth escapes and bloody encounters among the Indians. (Irving)

Tactile: Single and double needle-points, distance down  $\frac{1}{8}$  in. Also use algometer.

Smell: Graded extracts as in previous tests. Also present aqua distillata for contrast, and for test of suggestion.

Taste: Graded solutions as before. Also use pure water.

Location: Memory; visualization. Draw ground floor of a familiar building.

#### Mental Tests.

Association:

1. Genus: Tell—virtue, a state of mind, a state of body, a purpose, and an ideal.
2. Part—Whole: Of what is the following a part: a teacher, a soldier, a sailor, a word, a paragraph?

Reading: A selection from some classic author.

Composition: Have pupil write his autobiography.

Concentration: 100 A's.

Motor Co-ordination:

1. Striking graded pegs with metal pencil (electric contact).
2. Threading fine needles.

Method of Thinking: Same as under Intermediate.

Judgment (Experience):

1. Muscular and optical illusions. Same as under Intermediate.
2. Connecting 100 dots.
3. Jig-saw puzzles of graded number of pieces.
4. Geometric puzzles like the Anchor Puzzle (8).
5. Puzzle or riddle, like under Intermediate (8).
6. Practical question like under Intermediate (9).
7. A game of checkers, chess, Twenty Questions, etc.

Expression:

1. Draw from memory, or from model (living model) a portrait, or life study.
2. Paint some still life.
3. Model some ornament.
4. Draw or paint some landscape, from nature, or by way of composition.
5. Some song with accompaniment.
6. Playing on some instrument.
7. Recitation of some memorized poetry or oratory.
8. Spontaneous discussion of some familiar theme, as, e. g., the War of the Revolution and its Causes, or Fashions of the Day; or, the Advantages and Disadvantages of Traveling.

Aesthetic:

1. Color preference.
2. Favorite flower.
3. Favorite song or musical piece.
4. Favorite poem, story, literary piece, author.
5. Selecting most pleasing oblong (Golden Section).
6. Selecting most pleasing ellipse (Golden Section).

#### Remarks:

These series of tests are tentative and experimental. A more definite system can be established only after testing out these suggestions, also in comparison, perhaps, of the Binet tests, with a large number of children.

They have been in part compiled from previous work of a similar kind, as done in psychological laboratories; but such selections have been adapted to the present purpose, and graded as best as our knowledge of child nature would allow. In part, these tests are original with the author. And certainly, the arrangement and plan of the whole is new.

Whether the grading is in every instance correct will have to be investigated. It may, e. g., be suggested by some that younger children may more easily rely on the mechanical memory, and that therefore the nonsense syllable test which has been placed in the Advanced group, ought to change place with the Familiar word test as suggested for the Intermediate group. Again, the test with aqua distillata, for contrast in the smell tests, and for the effect of possible suggestion; and the test with pure water in the taste tests, for the same purpose, have been enumerated only among the tests for the Advanced group. It may be urged that the suggestion part of this test would be more fitly placed in the lower groups as suggestion is stronger with younger children. The author has here reversed the order which may be thought more in harmony with the natural development of the child, for the reason that the object of these tests is rather to examine the child's power to emancipate himself from earlier instincts and tendencies.

The main purpose of these tests is to establish, as far as possible, a measuring scale for the child's ability to grow, to develop, to expand; so that the distinction between arrest and retardation of development can be more safely made.

In applying these tests it is well to remember that a child who is chronologically supposed to be in a higher group, must first give evidence that he has psychic-psychologically, and mentally outgrown the lower groups. Therefore, he must master the previous development tests, before he is even tried in his own group. And within each period, when more than one test is presented within any one subject of examination, they are arranged in a tentative ascending scale, so that the different ages within the period may be more exactly determined. Thus, the First Series of such a test is intended more particularly for the first year within this period; the Second Series, for the second year, and so on. Likewise, those tests which are numbered (1), (2), etc., and (a), (b), etc., are arranged to a somewhat ascending scale. However, this scale must not be taken too literally and mechanically, as there are as yet no definite facts to serve as basis or gauge, and we must allow for variations in aptitudes. It may merely be accepted as a guide.

It is obvious that these tests cannot be expected to be made with a child all in one sitting. They will extend over a longer or shorter period of time. Only as much should be done in one examination as can be done without tiring the child. Many of the tests can be presented in the form and at the same time, of play and recreation. Other tests can be made a part of the schoolroom work.

These tests may perhaps, in a measure, be utilized in place of the traditional examinations in the schools, to determine a pupil's maturity for promotion.

In the work of the Groszmann School from the practice of which these tests have been elaborated, the data obtained from them are in the form of additional material for the general record of the pupils. The complete record consists in a searching Child History (statements from the parents and physicians of the child previous to examination in the school) and various measurements and examinations and tests, of the anatomical, structural and



functional condition of the child, including body measurements, health and disease records, sense tests, etc., etc.

## PROCEEDINGS OF THE SAN FRANCISCO COUNTY MEDICAL SOCIETY.

During the month of August the following meetings were held:

### Section on Medicine, Aug. 1st, 1911.

1—Presentation of Causes of Lupus Vulgaris. Harry E. Alderson. Discussed by D. W. Montgomery.

2—Dermatitis Venenata from Proprietary Hair Dye. E. D. Chipman.

3—Report of Dermatological Cases from Proprietary Hair Dye. J. Cameron Pickett. Discussed by Drs. Power, Williams, Montgomery, Alderson, Chipman and Pickett.

4—The Exceptional Child. Maximilian Groszman, M. D., Ph. D. Discussed by Drs. Brown, Porter, Miss Katharine Felton and Dr. Groszman.

### General Section, Aug. 8th, 1911.

1—Presentation of a Case of Acute Localized Encephalitis after Whooping Cough; decompression followed by Relief from symptoms. Dr. R. L. Ash.

2—Report of the Committee for the Study of Anterior Poliomyelitis. E. C. Fleishner, Chairman. Discussed by Drs. Hunkin, Porter and Lennon.

3—Nephritis. Martin Fischer. Discussed by Drs. Wilbur, Quinan, Fleischner, Silverberg, Fischer.

### Section on Surgery, Aug. 15th, 1911.

1—Improved Technic of Veno-Peritoneostomy for the Relief of Ascites. H. E. Castle. Discussed by Drs. Rosenstirn, Tait and Castle. (Paper to be published in J. A. M. A.)

2—Technic of Abdominal Hysterectomy: Its Methods and their Indications: lantern demonstrations. A. J. Lartigau. Discussed by Drs. Von Hoffmann, Somers, McNutt, Kugeler, Hoffman, Rosenstirn, Lartigau.

### Presentation of Cases of Lupus Vulgaris.

By HARRY E. ALDERSON, M. D., San Francisco.

These three cases of lupus vulgaris (from my clinic at the Fruit and Flower Mission and the Infants' Shelter) are of interest because each one presents a different phase of the disease and so an opportunity is offered to compare the earliest lesions (as seen in the cases of this little boy and the little girl) with the extensive lesions of long standing (as seen in the adult). It is a striking demonstration of what can develop from a small and apparently benign affair. The adult has had her lupus for over forty years,—it began in infancy as a tiny lesion (as most of these cases do) and developed very slowly and in a characteristic manner until, as you see, it now involves the entire left side of her face and contains a large number of active foci (the typical "apple jelly like" nodules) all through the area. Cicatrization is well marked along its lower border and the ear lobe has been destroyed.

The little boy has on his right cheek a small non-ulcerating, half-dime sized patch containing about four characteristic "apple jelly nodules" (of the kind seen in large numbers in the adult). The disease in this case is of about three years' duration. The patient's mother thinks that it came from a cut produced by falling on some scissors on the floor. Tuberculosis cutis originating in such a manner, however, would be more apt to be of the verrucous type.

This little girl shows a dime-sized lesion on the right cheek in the near neighborhood of some cicatrices from old tuberculous glands which had broken down about a year and a half ago. At that time the lupus patch was first observed by the mother, and she states that it has not increased in size. As you can plainly see, there are several of the deep seated nodules present. It is on this feature principally that a diagnosis is usually based.

Two of these patients have given a positive tuber-

culin reaction and it has not been tried in the other on account of some active glandular involvement.

As for the treatment, a great deal can be said, but it is late and so that phase of the subject will be discussed briefly. All of these patients ought to have tuberculin injections supplemented by X-ray treatment. The adult has been receiving tuberculin and is improving slowly. She will be given radiotherapeutic treatment also. At one time she was given an application of a paste containing pyrogallol, resorcin and salicylic acid for the purpose of producing a reaction and sloughing of the nodules. The reaction was intense and the desired sloughing occurred. When it subsided the area thus treated looked much better. A few more applications of the same ought to produce very marked improvement but the patient objects to such heroic treatment. As soon as her consent is obtained the procedure will be repeated. In the case of the small lesions the best treatment would be complete extirpation of the patch including a zone of the apparently healthy skin surrounding, and also subcutaneous fat beneath the lesion. If done thoroughly the result is good, as I have recently been able to report in the case of one of my patients. This course undoubtedly would prove successful in both the small early lesions here shown, but in neither case can permission be obtained. The boy's lesion looks much better than it did, much of it having been destroyed by freezing. I used the carbon dioxide snow. There are various effective means of destroying the foci but they must be used thoroughly or there surely will be a recurrence. As for the treatment in the case of the little girl,—she has only recently come to me and I have not yet decided what course to pursue. I feel that she ought to be given tuberculin and systematic radiotherapeutic treatment.

Various other means of treatment might be mentioned, but on account of the lateness of the hour and the length of the program it will be impossible to consider them.

### Discussion.

Dr. D. W. Montgomery, San Francisco: For such cases as the boy presents extirpation is the best treatment. Lang of Vienna was the first to carry out this treatment extensively, and he showed fine results. I have removed quite a number of lupus patches by total extirpation, but it is marvelous how recurrences will appear after what seems to be the most thorough removal. A woman under my charge had the most obstinate recurrences after repeated operations. As regards the woman shown by Dr. Alderson, where a very large area is involved, it is impossible to remove the diseased tissue by extirpation, as it would require too great denudation of the face. The Finsen light treatment gives excellent results, but it requires such a deal of patience that I hardly think that it can be carried out in any place except Copenhagen. There the people seem to have no nerves, and a girl will manage the machine from morning till night without apparent tire. I do not think that we could here get our nurses to do the work. It is a most wearisome treatment both in its application and in the length of time required; a year and a half or two years is not unusual in the treatment of a small lupus patch, and even then recurrences are not unusual. In its application a little hollow glass tube containing cool running water is held against the patch so as to press out the blood, and it has to be held in such a way that the ray of light will fall at the correct angle and at the correct distance, so as to strike into the lupus patch. The nurses in the Finsen Light Institute do this work seemingly uncomplainingly for hours of a day, and day after day.

### Report of Dermatological Cases Caused By a Proprietary Hair Dye.

By J. CAMERON PICKETT, M. D., San Francisco.

I herewith submit a report of some interesting cases of dermatitis venenata, caused by the use of a proprietary hair dye, which have recently come un-

der my observation, as illustrating some of its special phases.

The cases of Mr. and Mrs. J. S. are of more than passing interest because they demonstrate a means by which the disease may be spread. Mr. J. S. consulted me on July the sixth of this year complaining of an erythematous condition about the eyes, lips, scalp and scrotum. There was, in addition, moderate conjunctivitis and some subjectively pronounced itching. This condition had existed for about two years, during which time the patient had been under treatment at different springs and sanitariums with light rays, etc. The case had already been diagnosed as dermatitis venenata, and it was believed that poison oak was the exciting cause. Mrs. J. S. consulted me the same day, stating that she had contracted poison oak from her husband some six months before. She had a moist erythematous rash on the shoulders, neck, forehead and behind the ears. She had taken the same treatment as her husband but had continued to grow worse as the weather became warmer, the itching becoming intense and the dermatitis extending down around the breasts. On examining her hair, I found it to be of a black color except near the scalp where it was very gray. She admitted having used Mrs. Potter's Walnut Juice Hair Stain for over two years, applying it at the roots every few days, thus keeping her hair black.

Mr. J. S.'s skin being more susceptible to the poison in the "Hair Stain" than that of Mrs. J. S., he had, by coming in contact with her hair, contracted a dermatitis almost as soon as she commenced its use, while her symptoms did not begin to manifest themselves until a year and a half afterwards. While he was away from his wife, on a trip to the southern part of the state, he had become much better, but on returning home all of his symptoms returned, especially on the lips, the latter ones undoubtedly caused by kissing.

Mrs. J. S. stopped the use of the "Hair Dye," and, with the use of a calamine lotion and a soothing ointment, both cases were soon cured.

Case 2. Mrs. L. called at my office on June sixth of this year complaining of itching behind the ears, and on the forehead, scalp and neck; there was also burning and itching around the eyes. On examination I found a moist erythema behind the ears and on the neck; there were papules on the scalp and on the forehead, conjunctivitis, edema of the lids and erythema around the eyes. Her hair was brown, but gray next to the scalp. She confessed that she had used Mrs. Potter's Hair Stain for a few days before the skin symptoms began.

Case 3. On May second I was called to treat Mrs. W., aged 62. She complained of itching and burning back of the ears and on the face, neck, wrists and ankles. She had severe headache with a temperature of 101, and was very nervous from loss of sleep due to intense itching. The eruption first appeared on the forehead and behind the ears, and several days afterwards on the wrists and ankles. The eyes were very edematous and there was acute conjunctivitis. The hair was brown except next to the scalp, where it was gray. At first she denied using the "Hair Stain," but finally admitted that she had used it for two years.

Case 4. Mrs. K., aged 46, called at my office on February ninth complaining of intense itching behind the ears, and on the scalp, face, arms, neck and chest; these symptoms began about two months before.

Examination showed papules and a dry erythematous rash on the face, neck and shoulders; there was also a moist erythematous eruption over chest and around the breasts extending nearly to the waist. The itching was so intense and the patient so nervous that it was difficult to get a coherent statement from her. Her hair was gray, streaked with greenish brown and showed plainly the use of a hair dye. She admitted having used Mrs. Potter's Hair Stain for several months.

Case 5. On June 1st I was called to see Mrs. D., aged 48, who was suffering from a severe dermatitis behind both ears, and on the face, the neck, back and arms, accompanied by burning and itching. In addition to the erythema the ears were swollen and the eyelids edematous. She stated that the eruption had broken out on the day after she had used Mrs. Potter's Hair Stain, and, as she had suspected the cause, she had applied a little to her arm, with the result that she had an eruption there next morning.

From a study of these cases I would deduce the following interesting conclusions:

First. The apparent lasting immunity of some subjects.

Second. The apparent temporary immunity of some subjects, which under special influences is lost.

Third. The particular seats of predilection; namely, behind the ears, on the forehead and about the eyes.

Fourth. The variable lapse of time between contact with the irritant and the onset of the inflammatory reaction.

Treatment. Have the patient stop the use of the hair dye. Remove as much of the dye as is possible by washing the hair and scalp with alcohol and rinsing with water as hot as can be borne. Apply a calamine zinc lotion containing 2% of carbolic acid to the moist and inflamed lesions, and either Lassar's paste or zinc ointment with 2% each of salicylic and carbolic acids to the dry scaly lesions. Give a mild saline every morning.

All of the above cases were cured in from three days to three weeks.

#### Discussion.

Dr. H. D'Arcy Power, San Francisco: I would like to point out the close relation between these cases of hair dye poisoning and the same type of dermatitis venenata that is commonly met with among photographers, who, working with certain of the reducing agents, suffer in the same way. There is a chemical relation between the poison in these cases and the substances that the photographers use as reducers. I have repeatedly met with the photographic variety; its most common cause is working with the Metol, to the action of which many are very susceptible while others are unaffected. The general character of the dermatitis is the same as that described by Dr. Chipman, and while its first appearance is usually on the hands, the body may also suffer. Concerning this outwandering of dermatitis from the point of infection, I find it very difficult to believe that it is due to contact. I have seen a dermatitis start from the application of chrysarobin to the foot and extend over the greater part of the body. The drug was in form of an ointment and there was no physical evidence of its presence near the secondary lesions. As to the possibility of finding a chemical antidote for phenylene diamine or its product quinone, that ought to be possible; the latter substance is chemically transmutable into hydroquinone, which is not particularly irritating.

Dr. Francis Williams, San Francisco: I am very much interested in these cases, because they recall to my mind a case which I had two years ago, and I really did not appreciate its nature at the time. The patient readily acknowledged having used a hair dye, but I do not know what brand it was. It was interesting in that not only were the subjective symptoms extreme, but the edema and swelling so great as to close the eyes and render the features almost unrecognizable for a few days. It subsided under local treatment.

Dr. D. W. Montgomery, San Francisco: I have seen very few of these cases. Recently I had one, a woman with dermatitis of the forehead, ears and spreading down the neck simulating an erythematous eczema. The patient herself suspected it was from hair dye. After stopping the use of the dye for some time, the inflammation cleared up, to recur on resuming the dye. It was, therefore, plain that it was



the dye that was the noxious agent. A few days after this Dr. W. A. Hardaway of St. Louis called on me, and told me that he had quite a large number of these cases. Dr. Hardaway says that it will attack the lids of one eye, leaving the other untouched. In fact, it will sometimes attack the eyelids and spare the forehead. It is very probable that the patient's general condition plays a part in the outbreak of the eruption. It would be most desirable if something could be found that would prevent this particular dye from being irritant, because its use is not always a question of vanity, but is a question of economics, as there are many employments in which gray-haired women are decidedly discriminated against. Many of the department stores will not take women with gray hair, and they also have their troubles in the school department. The youngsters seem to have a particular antipathy to gray hair, just as in Biblical times they had to Elisha's bald head. I wish to thank Dr. Chipman and Dr. Pickett for bringing our attention to these very interesting cases.

Dr. Harry E. Alderson: These papers are very timely as we are all seeing these cases in increasing numbers. One reason for this is that Mrs. Potter, or whatever her name is, has been advertising this patent hair dye a great deal and physicians all over the country have been advertising it by reading papers and mentioning it by name.

Dr. E. D. Chipman, San Francisco: I am very much interested in Dr. Power's suggestions as to the finding of a chemical antidote for this substance. Many of our cases were in women who were employed, and who depended upon their work for their bread and butter, and who could not gain employment as long as their gray hair was in evidence. I will say for Mrs. Potter that with the dye you can get the most beautiful Titian shade or the deepest black according to the quantity used. It is largely a question of susceptibility to it, as in poison oak; some of us can wade right into the poison oak and come out unharmed while others get severe reactions from going near it. Dermatitis venenata may appear in single patches or it may coalesce. We have seen instances where it would affect the upper lid and spare the lower lid. Concerning the spread of the disease, I have never been able to convince myself that either the spread of this disease or of poison oak were due to anything else but actual transference from part to part. It is very difficult for me to be convinced that these things travel in the blood or by means of nervous impulse or anything of that sort; they are too mysterious or vague for me to comprehend.

Dr. J. Cameron Pickett, San Francisco: I believe that this dye is the same that is used in the dyeing of black stockings; the journals have reported several cases of dermatitis from this cause, but I have never seen one.

#### Smoker.

On Friday evening, August 25, the society entertained Professor Ernest Fuchs at a smoker at the Tait-Zinkand Cafe. All visiting doctors who had come to the city to attend the professor's lectures were likewise invited. Everybody present had a grand time, and, while the reunion was a strictly informal one, short addresses were made by the President, by the Chairman of the Eye, Ear, Nose and Throat Section, as well as by Professor Fuchs, Dr. Lamotte of Seattle, Dr. Roberts of Pasadena, Dr. Briggs of Sacramento and Dr. George Powers of San Francisco. At the close of the evening, Dr. Barkan wished the professor Godspeed.

#### Case of Acute Localized Encephalitis After Whooping Cough—Decompression Followed by Relief from Symptoms.

By R. L. ASH, M. D., San Francisco.

Harry O., aged 2 years 8 months, entered Children's Hospital, May 18, 1911. He had been in good health up to January, 1911, when he contracted a

severe whooping cough. On March 13 he was suddenly seized with a general convulsion, which was followed by another three days later. This second attack was succeeded by unconsciousness lasting four hours. The next day, according to the mother, the convulsions changed to their present character. They gradually became more frequent.

The attacks, on admission to the hospital, usually came every few minutes, and lasted five to ten seconds; occasionally, especially in the afternoon, one or two hours might elapse without one. His head and trunk fell to the right (especially noticeable when he sat up); there were slight twitchings of both corners of mouth, sometimes of right fingers. The pupils were dilated, the eyes remained open and staring. He could usually be roused by offerings of chocolate, etc., for which he reached with his right arm.

He stopped walking, probably in fear of falling. That he had fallen frequently was shown by scars on right forehead.

There was no vomiting, no headache, no incontinence.

Physical examination was practically negative, except for a slight spasticity of right arm and leg.

As the attacks were increasing in number and duration, I transferred patient to the surgical service, Dr. Larson, with the diagnosis of focal encephalitis, probably on left side.

On June 16, 1911, Drs. Terry and Larson performed an osteoplastic resection of the skull, widely exposing left motor area. On opening the dura, the brain was found to be oedematous. Further exploration revealed a small reddish patch of firm adhesions, about the size of a half dollar, uniting dura, pia and underlying cortex at about the inferior junction of the anterior central and superior frontal convolutions (trunk area?). The adhesions were broken down, the flap replaced with the exception of a circular piece of bone about two inches in diameter in the neighborhood of the affected area.

After the operation the same frequent attacks continued for about twelve days. Then they became less and less, and finally disappeared about July 6. He soon began walking. Though there had been no aphasia of any kind before operation, for some reason the child stopped speaking till shortly before his discharge, July 27.

At present there is apparently no cerebral trouble of any kind.

The prognosis is exceedingly doubtful. Only a few recoveries, spontaneous or post-operative, are recorded in the literature.

#### Report of the Committee for the Study of Anterior Polyomyelitis in San Francisco During 1910.

Compiled by E. C. FLEISCHNER, M. D., San Francisco.

In July, 1910, a committee, composed of Drs. M. B. Lennon, R. L. Ash, W. F. McNutt, Jr., E. Smith, G. J. McChesney and E. C. Fleischner, was appointed by Dr. Langley Porter, the President of the society, to study and gather data on the epidemic of poliomyelitis which at that time seemed to be prevailing in San Francisco.

At the first meeting of the committee it was decided to address return postal cards to all licentiates practicing medicine in San Francisco, containing the following questions:

1. Have you had any cases of the classical type of poliomyelitis in your practice since January, 1909?
2. Have you had any cases of encephalitis resembling meningitis?
3. Have you had any cases of acute tremor or ataxia in children?
4. Have you had any cases of acute paralysis of the facial or eye muscles?
5. Have you had any cases of acute ascending paralysis?
6. Have any cases other than those in your practice come to your notice since January 1, 1910?

Positive replies were received reporting 67 cases occurring between October 1, 1909, and October 1, 1910.

At the second meeting of the committee, held in August, 1910, it was voted to send a further list of questions to those physicians who had reported cases of the disease, in order to obtain data on the location, etiology if possible, and symptomatology of this obscure condition. Without taking up the time to detail here the questions that were asked, the committee begs leave to now submit the results of the observations that were made upon the cases studied collectively:

I. Sex—42 cases or 63% were males; 25 cases or 37% were females.

II. Age—3 cases or 4.5% occurred under one year of age; 6 cases or 9% occurred at 1 year of age; 18 cases or 27% at 2 years; 13 cases or 19.5% at 3 years; 7 cases or 10.5% at 4 years; 6 cases or 9% at 5 years; 2 cases or 3% at 6 years; 1 case or 1.5% at 8 and 9 years; 3 cases or 4.5% at 10 years; and 1 case or 1.5% each at 11 years, 12 years and 13 years. Three cases or 4.5% occurred in adults; one at 20 years, 28 years and 30 years. In one case, 1.5%, the age was not given. The most striking deduction from these figures is the large number of cases seen between the ages of one and six years. Seventy-five per cent. of all the cases have occurred during this period.

III. Month of year. January, 1 case, 1.5%; February, 4 cases, 6%; March, 1 case, 1.5%; April, 3 cases, 4.5%; May, 11 cases, 16.5%; June, 14 cases, 21%; July, 11 cases, 16.5%; August, 12 cases, 18%; September, 3 cases, 4.5%; October, 2 cases, 3%; November, 1 case, 1.5%; December, 4 cases, 6%. Seventy-two per cent. of all the cases occurred during four summer months, May, June, July and August.

IV. History of exposure. In 65 cases, 97%, no history of exposure was obtainable. In two cases, 3%, there was a history of exposure. One was a boy whose brother had been affected four months previous; the second was a child whose mother, three days before the onset, had nursed a sick child who showed typical symptoms of the disease.

V. Onset. In 64 cases, 95.5%, the onset was sudden. In 3 cases, 4.5%, it was gradual, being preceded by malaise for several days.

VI. Injury. There was a history of preceding injury in 3 cases, 4.5%, the exact bearing of which is doubtful.

VII. Chill. In only 4 cases, 6%, was the disease ushered in by a chill. In 63 cases, 94%, there was no chill.

VIII. Condition of the patient at the time of onset. This is reported as good in 56 cases, 83½%. In one case, 1.5%, there was a history of measles three weeks before onset. Four cases, 6%, were recovering from pertussis. One case, 1.5%, was recovering from tonsilitis when attacked. One case, 1.5%, was reported as being anemic. In 4 cases, 6%, the condition of the patient at time of onset was not noted.

IX. Vomiting was present in 15 cases, 22.5%. Absent in 45 cases, 66%, and not noted in 7 cases, 10.5%.

X. Temperature was high in 55 cases, 82%; normal in 5 cases, 7.5%, and not noted in 7 cases, 10.5%.

XI. Pain was present in 40 cases, 59.5%; absent in 20 cases, 30%; not noted in 7 cases, 10.5%.

XII. Convulsions were present in 7 cases, 10.5%; absent in 49 cases, 73.5%, and not noted in 11 cases, 16.5%.

XIII. Diarrhea was present in 10 cases, 15%; absent in 47 cases, 68.5%, and not noted in 11 cases, 16.5%.

XIV. Constipation was noted in 14 cases, 21%; absent in 37 cases, 55%; not noted in 16 cases, 24%.

XV. Sore throat was present in 11 cases, 16.5%; absent in 39 cases, 58%, and not noted in 17 cases, 25.5%.

XVI. Duration of acute febrile symptoms. The fever lasted 1 day in 5 cases, 7.5%; 2 days in 7 cases, 10.5%; 3 days in 13 cases, 19.5%; 4 days in 10 cases, 15%; 5 days in 5 cases, 7.5%; 6 days in 1 case, 1.5%; 7 days in 3 cases, 4.5%; 8 days in 1 case, 1.5%; 9 days in 1 case, 1.5%; 10 days in 1 case, 1.5%; 14 days in 1 case, 1.5%; 21 days in 2 cases, 3%. In 7 cases, 10.5%, there was no fever. In 10 cases, 15%, no note was made on the point. In 60% of the cases the fever lasted between one and five days.

XVII. Time of onset of paralysis. Paralysis occurred on first day of disease in 23 cases, 34.5%; on second day in 10 cases, 15%; on the third day in 9 cases, 13.5%; on fourth day in 8 cases, 12%; on the fifth day in 7 cases, 10.5%; on sixth day in 1 case, 1.5%; on seventh day in 4 cases, 6%; on fourteenth day in 2 cases, 3%. Time of onset of paralysis was not noted in 3 cases, 4.5%. In 85.5% of the cases the paralysis occurred within the first five days of the disease.

XVIII. Opisthotonos was present in 9 cases, 13.5%; absent in 42 cases, 63%, and not noted in 16 cases, 24%.

XIX. Length of time from appearance of paralysis to maximum intensity of paralysis. In 22 cases, 33%, the paralysis reached its point of greatest intensity in 1 day; in 6 cases, 9%, in 2 days; in 4 cases, 6%, in 3 days; in 4 cases, 6%, in 4 days; in 1 case, 1.5%, in 5 days; in 1 case, 1.5%, in 14 days, and in 1 case, 1.5%, in 21 days. The time was not noted in 28 cases, 42.7%.

XX. Time of beginning improvement. Improvement in the paralysis was noted on the first day in 7 cases, 10.5%; on the second day in 1 case, 1.5%; on the fourth day in 1 case, 1.5%; on the fifth day in 3 cases, 4.5%; on the seventh day 3 cases, 4.5%; on the tenth day in one case, 1.5%; on the fourteenth day in 7 cases, 10.5%; on the twenty-first day in 5 cases, 7.5%; on the thirtieth day in 3 cases, 4.5%; on the forty-fifth day in one case, 1.5%; on the sixtieth day in 2 cases, 3%. There was no improvement in 3 cases, 4.5%, and no note was made upon this point in 29 cases, 43.5%.

XXI. Muscles involved in acute attack. Both lower extremities were involved in 20 cases, 30%. The left lower extremity was involved in 17 cases, 25.5%; the right lower extremity was involved in 10 cases, 15%. Both upper and lower extremities were involved in 4 cases, 6%. Right upper and lower extremities were involved in 3 cases, 4.5%. Right and left lower and right upper extremities were involved in 2 cases, 3%; right and left lower and left upper were involved in 2 cases, 3%. Both lower and both upper extremities were involved in 2 cases, 3%. Right upper extremity was involved in 1 case, 1.5%. Right shoulder 1 case, 1.5%. Left upper 1 case, 1.5%. Right tibialis anticus 1 case, 1.5%. Left tibialis anticus 1 case, 1.5%. Left lower and palpebral muscles 1 case, 1.5%. Both lower extremities and abdominal muscles 1 case, 1.5%.

XXII. Muscles permanently involved. (1) No note was made upon this point in 18 cases, 27%. (2) There was a complete recovery in 14 cases, 21%. (3) Right leg was involved in 9 cases, 13.5%. (4) Left leg was involved in 5 cases, 7.5%. (5) Left lower extremity was involved in 4 cases, 6%. (6) Right and left lower extremities were involved in 3 cases, 4.5%. (7) Right upper and lower were involved in 2 cases, 3%. (8) Right lower extremity was involved in 2 cases, 3%. (9) Right tibialis anticus was involved in 2 cases, 3%. (10) Left arm was involved in one case, 1.5%. (11) Left tibialis anticus in 1 case, 1.5%. (12) Right quadriceps femoris and tibialis anticus in 1 case, 1.5%. (13) Right quadriceps femoris, tibialis anticus and peronei muscles in 1 case, 1.5%. (14) Left quadriceps femoris, tibialis anticus and peronei muscles in 1 case, 1.5%. (15) Left upper and lower extremities in 1 case, 1.5%. (16) Right and left lower extremities and right upper extremity 1 case, 1.5%. (17)



Right and left lower and left upper extremity, 1 case, 1.5%.

XXIII. Electrical reactions were noted in too few cases to be of statistical value.

XXIV. Lumbar puncture and blood counts were also done in too few cases to be of statistical value.

XXV. Death occurred in two cases after the onset of the paralytic stage.

The committee submitted to the society in December, 1910, a preliminary report showing the geographical distribution of the disease as demonstrated by indicating each case reported on a map of the city. This map is again submitted to the society as a part of the final report of your committee.

A careful study of this map reveals some very interesting facts, one of the most striking of which is the occurrence of the disease in small groups in different sections of the city and the bearing which this may have upon the infectious nature of the disease is worthy of consideration.

Dividing the city into sections: 1. In the so-called Richmond District, bounded on the east by First avenue, on the west by the Pacific Ocean, south by Golden Gate Park, north by San Francisco Bay and Presidio, an approximate area of four square miles, there were three cases.

2. In the Sunset District, south of the Park, bounded on the north by Golden Gate Park, on the south by the Rancho Laguna de la Merced, west by Pacific Ocean, east by Stanyan street and San Miguel Rancho, an approximate area of five square miles, were five cases. Two of these were on Parnassus Heights.

3. In the district bounded by First avenue on the west, Divisadero street on the east, Fulton street on the south, the Presidio and the bay on the north, the approximate area of which is two square miles, there were no cases.

4. In the district bounded by Stanyan street on west, Divisadero and Castro on the east, Fulton on the north and Seventeenth street on the south, an approximate area of .8% of a square mile, there was one case.

5. In the district bounded on the west by Stanyan street and San Miguel Rancho, on the north by Seventeenth street, on the east by Castro street and Islais Creek, on the south by Ocean avenue, there were four cases in an approximate area of 2.5 square miles.

6. In the district bounded on the north by Ocean avenue, on the south by the county line, on the east by Islais Creek and on the west by Automobile Boulevard, an approximate area of two square miles, one case.

7. In the district bounded on the west by Divisadero street, north by the bay, south by Union street and east by Van Ness avenue, an approximate area of .8 square mile, three cases.

8. In the district bounded on the west by Divisadero street, east by Van Ness avenue, south by Sutter and north by Union street, one case in an approximate area of .8 square mile.

9. In district bounded on west by Divisadero street and Castro, north by Sutter, south by Market and east by Van Ness avenue, an approximate area of 1.1 square miles, twelve cases.

10. In district bounded on west by Van Ness avenue, east and north by bay and south by Market street, an approximate area of 2.2 square miles, five cases. Four of these were on North Beach.

11. In the district bounded on northwest by Market street, northeast by Bay, southwest by Twelfth street and southeast by the Southern Pacific Railroad tracks, an approximate area of 1.7 miles, six cases.

12. In district bounded on the west by Castro street, northwest by Market street, northeast by

Twelfth street, east and south by the Southern Pacific Railroad tracks, an approximate area of 3.5 square miles, five cases.

13. In the Potrero District, including Bernal Heights, bounded on east by Bay, south by Islais Creek and Islais Creek channel, west and northwest by the Southern Pacific Railroad tracks, an approximate area of 3.2 miles, eight cases.

14. In the district bounded on the west by Islais Creek, north by Islais Creek and Islais Creek channel, east by the bay and south by county line, three cases in an approximate area of six square miles, none of which was reported in South San Francisco.

In eleven cases the residence was not given. In two instances two cases occurred in the same house. Two of the children were affected the same month, July, 1910. The other two were afflicted at four months' interval, one in February, the next one in June, 1910.

In sixteen instances, 24%, the cases occurred in a locality in an adjacent block to which there was another case. In twenty instances, 30%, the cases occurred with one square block intervening. Thirty-five cases occurred in hilly sections of the city, twenty-one in level sections.

The most striking occurrence of the disease was in two sections: (1) Alamo Square and the neighborhood surrounding, (2) Howard and Seventh streets and the neighborhood surrounding.

Alamo Square is bounded by Hayes and Fulton, Steiner and Scott streets, within three blocks of which seven cases occurred, within two blocks of which five cases occurred, and within one block of which three cases occurred. Within three blocks of the corner of Howard and Seventh streets, five cases occurred, within two blocks of the corner three cases occurred. Four cases occurred within three blocks of the corner of Mason and Union streets.

#### Conclusions.

1. San Francisco has unquestionably been the seat of an epidemic of anterior poliomyelitis from October, 1909, to October, 1910.

2. That the cases ran typical clinical courses as they are ordinarily described for this disease.

3. The period of life most susceptible to this condition is between the ages of 1 and 6 years.

4. The summer months, May, June, July and August, represent the time of year that the disease is most potent.

5. Pain is a much more common symptom than was formerly described in the older text-books.

6. It is regrettable that lumbar puncture and blood counts were done in so few cases. Realizing the difficulty that permission to perform lumbar puncture entails, still there can be no doubt that this procedure offers the only accurate method of differentiating the fatal cases of poliomyelitis from unusual cases of meningitis. There are unquestionably many deaths from poliomyelitis and yet our bureaus of vital statistics rarely show this disease as a given cause of death. The importance of lumbar puncture is made evident when we realize that only by spinal cord and brain investigation have we thus far made any progress in the elucidation of the etiological factor in this obscure disease.

7. The occurrence of the disease in certain localities of the city while not sufficiently striking to warrant definite deductions is at least in three instances marked enough to merit comment and further investigation as to the bearing which sanitary and geographical conditions in these particular sections may have on the occurrence of the disease.

#### Discussion.

Dr. S. J. Hunkin, San Francisco: I am very much interested in this report of Dr. Fleischer but I am very much surprised at the small number of cases which he presents as having occurred during the year. I am under the impression that we must have had hundreds of cases in San Francisco during that period. My records alone show 76 cases during the

year. This, of course, was from the whole state.

I am also surprised at the proportion at the ages which Dr. Fleischnier gives; I would have said that there were many more cases in adults than this report would lead one to suppose. I am quite sure that we have had over a dozen cases in children between 12 and 16; we had one acute case in a man of 38; one in a boy of 22 and several cases in adults over 23 and 24. I feel quite sure that the age limit can be greatly increased from what we have supposed it to be. I have been impressed with the amount of pain present in poliomyelitis as compared to what we used to suppose existed in this disease, and this Dr. Fleischnier has called attention to. I also believe that many cases pass unnoticed; as a matter of fact, such cases have appeared in my office. One was a girl of 14 or 15 who had gone the rounds for 2 to 3 years with the diagnosis of congenital dislocation of the hip. I have had cases that were diagnosed rheumatism, which were in reality poliomyelitis. Often so-called cerebral meningitis is poliomyelitis. There are quite a number of comparatively sudden deaths due to poliomyelitis in my opinion not alone in children but in adults. Last fall I saw a case in San Rafael of a young boy of 22 years of age. The boy had been down town and had done quite a good deal of walking; the day was warm and he had eaten rather heartily of watermelon. He returned home feeling rather tired and his mother gave him a footbath to relieve his tiredness. The boy went to bed and slept all night. When he was called in the morning to go to work he could not move his legs and in 48 hours he could move neither his arms nor his legs. At the end of 3 or 4 days I saw him and there was not the least bit of movement below his neck. I was told that in San Rafael that week there had been 2 sudden deaths. One was a man who had fallen on the street and had become very limp. The coroner did not know whether this death was caused by heart disease or apoplexy; the autopsy revealed nothing and it was generally understood that the man had died of heart disease. In my mind there was very little doubt that the cause was acute poliomyelitis. I think the diagnosis should be called in question in every case of meningitis, in every case of rheumatism in children, in every case of severe headache in children and also each instance of rather rapid or sudden death, especially in children or young adults.

Dr. Langley Porter, San Francisco: The object of this statistical investigation is largely to gather data that will enable us to help in the control of this disease. One point that the committee has brought out which is very striking is the incidence of the disease in the summer months. This fact has been observed in every epidemic of poliomyelitis that has ever taken place, with one exception. Flexner in addressing societies in the east stated that while he was not prepared to say that flies were the agents of transmission that there was a great deal of evidence that added to that end. In San Francisco the summer months are very largely fly months and that perhaps is one small item to be added to the evidence against the fly as transmitter of the disease. Another point to be considered is that we do not get enough lumbar punctures and the reason for this is that we are afraid to ask for them, and I do not believe that any physician who has the confidence of the family would be refused lumbar puncture if when he asks for it he insists that it is a necessary and proper thing to do; we are very apt to lay on the patients sins that belong to ourselves. I move that the Society in asking the chairman to discharge the committee, extend a vote of thanks and commendation for the excellent work that has been done and for the very exhaustive report that has been presented.

Dr. Milton B. Lennon: Dr. Fleischnier has proven the incidence of an epidemic of poliomyelitis in San Francisco last year. I agree with Dr. Hunkin that the number of cases included in the report in

no way represents all that have occurred. In the beginning many men did not recognize poliomyelitis, for they were influenced by the old name of infantile spinal paralysis. We know that it affects adults, that it may be cerebral rather than spinal, and that it may have no residual paralysis. Many recognized cases were not reported. Finally there are the abortive cases which defy accurate recognition, unless one has a costly laboratory, monkeys, and active virus at hand, and these are denied to most of us. I think that the sixty-nine cases in the report represent no more than one-third of the cases which occurred in the past year.

#### Section on Urology—Aug. 29th, 1911.

1. Phenolsulphonaphthalein for Determination of Renal Function. R. L. Rigdon. Discussed by Drs. Mize, Krotoszyner and Rigdon.
2. Case of Rupture of Kidney. Melville Silverberg. Discussed by Drs. Fehleisen, Rosenstirn, Rigdon, Beasley and Krotoszyner.
3. Athletics and Sexual Neurasthenia. V. G. Veckl. Discussed by Drs. Fehleisen, Rosenstirn and Veckl.
4. Demonstration of Instruments. Henry Meyer.

#### Athletics and Sexual Neurasthenia.\*

By VICTOR G. VECKL, M. D., San Francisco.

Man was neither born nor created to do hard work. In the Bible we are told that Adam did not feel like working until Eve felt that it was time to dress herself.

People in general should like to return to yonder paradise where work is only play; and frequently we hear the cry 'back to nature,' but our tastes and endless wants will keep us out of paradise forever, and humanity is sure to remain housed, compelled to work overtime, and by degrees to be more and more neurasthenized.

The white man took upon himself the burden of civilizing or exterminating the few remaining close to nature races and making them acquainted with our neurasthenia producing virtues, wants, and vices.

While it may meet with contradiction were one to claim that every civilized person is neurasthenic to a certain degree, we all know that there are only a few neurasthenics who know themselves to be so, and the number of those who feel compelled to consult a physician is in proportion almost disappearingly small.

At close examination we find the world, and mainly modern society, full of sexual neurasthenics. There is, however, only one symptom all these neurasthenics are about, which they do not like, and the only one capable of compelling them to seek help for, and that is sexual impotence. So long as the neurasthenic is more or less over-strung and over-stimulated he is inclined to admire himself and he does not notice that anything is wrong with him until the excesses which are primarily caused by neurasthenia have in their turn become factors in the aggravating of the evil, and when in consequence the sexual organs refuse altogether to functionate. This is the reason why most physicians when speaking of sexual neurasthenia have only sexual impotence in mind, and why all the other symptoms of sexual neurasthenia are studied very little or not at all.

The man who does not hunt and fish his own food, and does not climb trees to gather his dessert, the man who does not live close to nature looks instinctively for some substitute for the exercise in the open air commanded by nature. Thus came the various games, athletics and sports in order to keep the muscles from becoming flabby and the abdomen from growing penguin.

We know that all bodily exercise is conducive to health in general only in proportion to the ease with



which it was performed, and that injudicious efforts in any kind of athletics are always injurious. This is the reason why the ancient Greeks already claimed that professional athletes were sexually weak. This sweeping assertion was and is adopted by authors, and being copied from one book into the other has survived these many centuries, but is certainly not correct.

The old Grecian trainers and managers of athletes thought that absolute abstinence from any sexual intercourse was conducive to the development of extraordinary strength, athletes therefore were compelled to abstain, and the general public gained the impression that they did not care. The experience of modern trainers and the athletes themselves, however, is different. They all agree on the following opinion: while the mind is preoccupied with any great coming event, which may be of very small importance to others, but is the one great event for the contestant himself, athletes are in the same position as great scientists and bookworms: sexual desires are dormant. Add to this preoccupation of the mind the actual bodily work, which, in many cases is pushed to the limit of endurance, and we can easily understand that when the days are spent in hard work the nights must be passed in peaceful slumber. As soon as the contest is over the dormant desires reappear with vehemence and excesses are the usual result.

These periods of change from abstinence to excess and vice versa, the injudicious training and overtraining until most of them are "gone stale," and not infrequently periodical overindulgence in alcohol, alternating with frantic efforts at reform are the main reasons why we find so many neurasthenias amongst our professional athletes, and why they last such a short time only.

Conditions are quite different with persons training and exercising with the only purpose in view of keeping the elasticity of their bodies. No kind of gymnastics or systematic exercising, even if carried to athleticism can ever cause sexual nor any other neurasthenia. Of course, when exercise or sport cease to be play and become hard work or even degenerate into a mania then neurasthenia is near at hand. We must not forget, however, that in many cases the neurasthenia is the origin of such absurdities and drives the victim to irrational acting.

Take, for instance, one of our newest sports, the automobiling. It certainly has become an actual menace. Talk about Abe Ruef like other prisoners in San Quentin losing their personality because of the ever present guns of the guards being trained on them! How can the San Francisco pedestrians keep their personality dodging the autocars speeding on crossings and dashing around corners? The long-suffering public could hardly be blamed should they feel some kind of a satisfaction when learning that motorcar speeding causes sexual impotence. Several cases I observed made me suspect this fact years ago, but I did not dare to trust my own observations, fearing that my wish may have been the father of my inferences and deductions. But now comes such a careful and absolutely reliable observer as Notthaft (*Zeitschrift fuer Urologie*, April, 1911), and reports four cases of sexual impotency in wealthy married men fond of automobile speeding, and one in a chauffeur. Notthaft knows of similar cases in the experience of others. The sexual depression developed in from three months to three years after special devotion to the sport. Notthaft ascribes the impotency to a cerebral neurasthenia from the nervous strain of the speeding. The intense concentration of mind required in speeding, the anxiety and the jar of the car—all tend to induce neurasthenia.

I am convinced that the jar of the car, and the bouncing upon the soft and warm upholstery are the chief harmful influences, because the speed-drunk motormaniacs have hardly any mind to concentrate upon anything.

At the end of the seventeenth century Lallemand wrote his great book on spermatorrhoea and other ailments which today we would call sexual neurasthenia. Lallemand's writings were a regular mine to many European authors on genito-urinary diseases for almost a century. At present Lallemand is somewhat neglected, it hardly being necessary to study him, because almost everything he wrote is preserved in most of our modern books on the same and kindred subjects.

It is not to be wondered that a genito-urinary surgeon of the seventeenth century, no matter how clever he may have been, was possessed by some prejudices. One of Lallemand's prejudices, inherited from Hippocrates was the idea that horseback riding is very injurious for any one afflicted with any kind of a genito-urinary disease. Religiously goes this preaching against horseback riding from book to book, and our authors only demonstrate their love for the perpetuating of old prejudices, and simply give conclusive proof that they know very little or nothing about the question.

The plain truth, of which everyone can convince himself easily, however, is that horseback riding properly done can never be injurious to the sexual organs nor to their functions. It is quite true that the rider must sit in his saddle upon that part of the body which is by nature upholstered and constructed for that purpose. Of course, like any other bodily exercise horseback riding is also injurious to various organs if done improperly. The rider who depends upon his balance instead of relying upon a firm clutch of his legs, the rider who rides with the stirrups low, cultivating an exclusive sitting trot, shaking in the saddle like a jelly-fish, hitting the saddle with his perineum, rubbing and knocking his sexual organs against a high and hard frontal knob, or the other kind of a rider who, thinking he rides the rising trot, bouncing lands on his perineum or testicles, must blame themselves and not the riding.

A single glance at the various cavalries of the world, the experience that everywhere the horseman was and is woman's favored, that wherever horse-rearing is carried on and horseback riding is common the number of births, legitimate and others, is above the average, while the morality of such places is not exemplary, are ample proof that riding done properly is not contraindicated in any genito-urinary disease in which absolute rest is not required.

Altogether we must come to the conclusion that no athletics provoke neurasthenia, that systematic exercise, horseback riding included, is indicated and helpful in many cases of neurasthenia, and that the abuses only can be harmful.

## SOCIETY REPORTS

### COOPER COLLEGE SCIENCE CLUB.

A regular meeting of the Cooper College Science Club was held on September 4th, 1911, at 8:30 p. m.

The election of officers for the coming year resulted as follows: President, P. H. Luttrell; secretary, E. D. Downing; treasurer, J. J. Walsh; board of directors, Wm. Ophuls, H. R. Oliver, R. L. Wilbur, F. W. Birtch, E. C. Dickson.

Scientific Program—1. (a) Case of Luetic Pleurisy; (b) Specimen of Gastric Ulcer; (c) Specimen of Gallstones. Wm. Fitch Cheney. Discussed by Drs. Oliver and Cheney.

2. Presentation of Cases. E. C. Sewall. Discussed by Drs. Graham and Sewall.

3. Presentation of Surgical Cases. I. W. Thorne. Discussed by Drs. Cheney, Thorne, Dickson and Thorne.

Refreshments were served at the close of the program.

### CALIFORNIA ACADEMY OF MEDICINE.

The California Academy of Medicine held a regular meeting on Monday evening, Aug. 28th, 1911, at which the following program was given:

1—Cases and Comments on Typhoid Lesions of Bone. Harry M. Sherman.

2—Report of a Case of Typhoid Pelvic Abscess. A. J. Lartigau.

3—Case Report. Harold Brunn.

The general discussion was opened by Dr. Ophuls, who was followed by Drs. Kugeler, Rixford, Montgomery, Lieut.-Col. Freck, Hunkin, Sherman and Lartigau.

At the close of the program refreshments were served.

### PACIFIC COAST OTO-OPHTHOLOGICAL SOCIETY.

During the week of Professor Fouchs' course of lectures given at the Medical Department of Stanford University, the Pacific Coast Oto-Ophthalmological Society effected a permanent association for the advancement of their specialty. At the time a permanent organization was effected, forty members were enrolled. Primarily this Society will be made up of practicing specialists of Washington, Oregon and California. They will meet every year in one of the three States and at the same time as the State Medical Society. The first meeting will be held in the State of Washington (date and place to be arranged later).

To become a member of the Pacific Coast Oto-Ophthalmological Society, it will be necessary for the applicant to have the signature and seal of the Secretary of the County Medical Society in which such applicant resides. The dues, \$2.50 a year, payable January 1, 1912. By sending in your application before January 1st, 1912, you become a charter member. Officers for the ensuing year:

President—Dr. John F. Dickson, Oregonian Bldg., Portland, Oregon.

Vice-President—Dr. Wm. H. Roberts, Pasadena, California.

Executive Committee—Drs. Wm. A. Martin, San Francisco, Cal., one year; Henry La Motte, Seattle, Wash., two years; John F. Dickson, Portland, Ore., three years.

Secretary and Treasurer, Dr. Cullen F. Welty, 210 Post street, San Francisco, Cal.

Address all communications to the Secretary.

### PROCEEDINGS OF THE AMERICAN PROCTOLOGIC SOCIETY.

Thirteenth Annual Meeting, held at Los Angeles, Cal., June 26 and 27, 1911.

The President, Dr. George J. Cook, of Indianapolis, Ind., in the chair.

Officers elected for the ensuing year: President, John L. Jelks, M. D., Memphis, Tenn.; Vice-President, Alfred J. Zobel, M. D., San Francisco, Cal.; Secretary-Treasurer, Lewis H. Adler, Jr., M. D., Philadelphia, Pa.

Executive Council—George J. Cook, M. D., Indianapolis, Ind., Chairman; John L. Jelks, M. D., Memphis, Tenn.; Dwight H. Murray, M. D., Syracuse, N. Y.; Lewis H. Adler, Jr., M. D., Philadelphia, Pa.

The place of meeting for 1912 will be at Atlantic City, N. J. Exact date and headquarters to be announced later.

The following were elected Associate Fellows of the Society: Dr. Arthur F. Holding, 98 Chestnut St., Albany, N. Y.; Dr. Ralph W. Jackson, Fall River, Mass.; Dr. E. H. Terrell, 304 East Grace St., Richmond, Va.

The following is an abstract of the principal papers read:

### Extracts from the Report on Proctologic Literature from March, 1910, to March, 1911.

By SAMUEL T. EARLE, M. D., Baltimore, Md.

In Samuel T. Earle's review of Proctologic Literature from March, 1910, to March, 1911, he quotes from the following authors giving the salient points from each of their papers:

Harrison Cripps, British Medical Journal, Vol. I, 1910, p. 292, endorsing Mummery's criticism of Whitehead's operation for hemorrhoids.

Dr. F. C. Wallis, British Medical Journal, Vol. I, 1910, p. 415, in defense of Whitehead's operation.

Dr. Donald C. Balfour, Rochester, Minn., Annals of Surgery, Vol. II, 1910, p. 239, gives Dr. W. J. Mayo's method of Anastomosis between the sigmoid and rectum.

Dr. Charles H. Peck, New York City, Annals of Surgery, 1910, Vol. LI, p. 242, describes a method of excising the rectum for cancer by the perineal route.

Dr. Norman Porritt, London Lancet, 1910, Vol. I, p. 360, describes a simple and efficient operation for hemorrhoids.

Dr. J. P. Lockhart Mummery, London Lancet, 1910, Vol. I, p. 641, describes a new operation for prolapse of the rectum.

Mr. Heaton C. Howard, London Lancet, 1910, Vol. I, p. 240, showed a case of stricture of the rectum treated by injections of fibrolysin, which were given three times a week.

Dr. Walton Martin, Annals of Surgery, 1910, Vol. LI, p. 125, reported a case of anastomosis between the sigmoid and rectum by invagination.

Dr. Joseph A. Blake, Annals of Surgery, 1910, Vol. LI, p. 261, gives an unusual method of anastomosis in cases of carcinoma of the rectum.

Extracts from a statistical report of 120 cases of removal of the rectum for cancer by Dr. William J. Mayo, Annals of Surgery, 1910, Vol. LI, p. 895.

Dr. W. Sampson Handley in his second Hunterian Lecture gives some very interesting and instructive suggestions about the extension of cancer of the rectum by the lymphatic system, British Medical Journal, 1910, Vol. I, p. 927.

A series of instructive papers on excision of the rectum for carcinoma can be found in the British Medical Journal, 1910, Vol. I, by the following writers:

Charles A. Morton, page 1378; Harrison Cripps, page 1323; F. Swinford Edwards, page 967; W. Bruce Clarke, page 1023; P. Lockhart Mummery, page 1144; W. Ernest Miles, page 1203.

James Swain, British Medical Journal, 1910, Vol. I, p. 361, advocates very strongly the removal of all lymph glands in cancer of the rectum.

Dr. E. K. Scott, Boise, Idaho, Northwest Medi-



cine, Vol. II, No. 3, p. 85, a plea for more thorough examinations of the rectum for carcinoma by the general practitioner.

Dr. C. L. Gibson, *Annals of Surgery*, 1910, Vol. LI, p. 116, gives a special method for end-to-end Intestinal Anastomosis by the Invagination Method, in cases where other methods would be impracticable. Sigmoid Replaced by Small Intestine. Riechel, *Verhand. d. Deutsch. Gesell. f. Chir.*, April, 1910.

Dr. Wilson, *Annals of Surgery*, February, 1911, p. 223, speaks of the association of diverticuli and carcinoma in the lower bowel.

DeWitt Stetten, *Zeitschrift of the German Hospital*, New York, 1909, published two most interesting observations on the co-existence of tuberculous ulcers and carcinoma of the large intestine.

Dr. Wyllys Andrews, *Surgery, Gynecology and Obstetrics*, January, 1911, p. 63, gives an interesting account of a new form of industrial accident—Pneumatic Rupture of the Intestine.

Bard, *Semaine Medicale*, November 30, 1910, Vol. XXX, No. 48, p. 565, recounts a case showing this rather unusual type of Hirschsprung's disease,—Idiopathic Dilatation of the Rectum.

Treatment of Painful Fissures and Piles by High Frequency Currents. A. Teirlinck, Gand, Belgium. *The Proctologist*, December, 1910.

### PROCTOLOGY.

Symposium of papers read at the American Proctologic Society, held June 26-27, 1911, in Los Angeles.

#### How Can an Infected Sigmoid Diverticulum Be the Cause of a Retro-Peritoneal Abscess?

By DR. A. TIERLINCK, of Gand, Belgium.

In the present state of abdominal surgery the appendix is frequently regarded as the chief cause of all abdominal troubles.

Recently numerous works have been published concerning sigmoiditis and persigmoiditis. Diverticular abscesses are not as frequent as appendicular abscesses. It should be borne in mind that the sigmoid is often located in the right iliac fossa and diverticular abscesses may be mistaken for appendicular trouble.

In the young the sigmoid flexure is free and communicates with the retro-mesenteric and pre-aortic cellular tissues by the tissue of the meso-colon. Infection can be transmitted from the diverticula into the retro-peritoneal cellular tissue by three means,—the connective tissue, the lymphatic system, and the venous blood-vessels.

In adults the sigmoid is adherent to the posterior abdominal wall and in such cases there is another source of infection,—an external one; due to the numerous anastomoses between the meso-colic glands and the parietal lymphatic system and between the sigmoid blood-supply and that of the retro-peritoneal region.

#### Some Observations Upon the Surgical Anatomy and Mechanism of the Colon.

By GRANVILLE S. HANES, M. D., Louisville, Ky.

Until comparatively recent years diseases of the colon and sigmoid, and the surgical anatomy of each, received but scant attention. Recently, however, much valuable information upon this subject has been developed. Robert Coleman Kemp in his work on *Diseases of the Stomach and Intestines* says that Dr. J. M. Mathews was the first to call attention to sigmoiditis and diverticulitis of the sigmoid.

The entire length of the large bowel in situ is found to be much shorter than when it is dissected from its attachments. An ordinary thirty-inch colon tube has sufficient length to extend around the lumen of the large bowel to the cecum. While this has not been done in the living individual it has been done in the cadaver, and radiographs of the same are on record.

It is almost universally believed that ordinary

flexible colon tubes can be manipulated in such a way as to traverse the entire course of the large bowel around to the cecum. It has been proven by a number of investigators that such an achievement is impossible in the normal bowel. The average length of the sigmoid is about eighteen inches, and this being a floating portion of the large gut it is almost impossible for an instrument to pass beyond the middle half of the sigmoid. Should such be possible and the tube enter the descending colon it would be a physical impossibility for it to pass either the acute angle at the splenic flexure or the hepatic flexure. The failure of instruments to pass high into the bowel has been demonstrated by X-ray pictures.

Dr. Hanes demonstrated the difficulty in passing any instrument through the hepatic and splenic flexures by introducing a thirty-inch, No. 20, French, soft rubber catheter into the caecum in an old appendicostomy case. He failed by any kind of manipulation to pass the catheter through these flexures. The tube was allowed to remain in the head of the colon for twenty-four hours with the hope that peristalsis would carry it around, but this failed. After manipulating the second time three hours later four inches of the catheter appeared through the anal opening.

He forced bismuth solution into the head of the colon till the wall of the gut was thoroughly distended and then Dr. E. Bruce made a skiograph. No regurgitation into the ileum occurred. This experiment was repeated a number of times with the results as above given. If the ileo-cecal valve allows no reflow into the ileum then exceedingly large amounts of water injected into the bowel are retained in the large gut, and not a part of the amount passed into the small bowel as is supposed by some.

In an old appendicostomy case, with the patient on the left side, coal-oil was poured into a colon tube that had been introduced three inches into the rectum. In six and a half minutes the oil was flowing out of the appendicostomy opening. The amount employed was thirty ounces. This clearly demonstrates that liquids will easily pass around the entire colon without flowing through a tube. The point is also made that coal-oil is much less irritating to the mucosa than plain water or ordinary aqueous solutions.

The capacity of the large bowel in situ was measured by temporarily closing the opening of an appendicostomy case and allowing coal-oil to flow into the rectum as long as the patient could tolerate it. At a later date the same experiment was made by allowing oil to flow into the head of the colon. About the same amount of oil was received in each case. After making the same experiments in other cases it was decided that the average large bowel had a capacity varying between fifty and sixty-four ounces.

The capacity of the rectum was ascertained by inverting the patient and placing a colpeurynter at the junction of the sigmoid and rectum, just within the sigmoid. The colpeurynter was then distended with air until no fluid could pass into the sigmoid. Coal-oil was allowed to flow into the rectum till no more could be received. It was then drawn off with a catheter and the average amount was found to be between fourteen and seventeen ounces.

He insists that the Inverted Position (Hanes) is much to be preferred by both patient and operator when any kind of illuminating instruments are to be employed in the rectum or sigmoid.

#### Have We an Ideal Operation for Internal Hemorrhoids?—A New Hemorrhoidal Clamp.

By A. B. COOKE, M. D., Nashville, Tennessee.

An ideal operation for internal hemorrhoids must embody the five following surgical principles and precepts:

1. Complete hemostasis.

2. Immediate closure of the operative wounds.
3. Preservation of the function of the parts.
4. Permanency of cure.
5. Due consideration of the factors of safety, simplicity of technic, time required for recovery, and the amount of post-operative discomfort.

The ligature operation violates principle 2.

The clamp and cautery operation falls short with reference to the fourth class of principles in each of its several points.

The Whitehead operation violates principles 1, 3 and 5, and is, moreover, an unnecessary and unjustifiable procedure.

The operation by means of Earl's clamp is a modification of the Whitehead method and a vast improvement upon it, but is apt, likewise, to violate principle 3.

Pennington's enucleation operation is open to criticism under classes 1 and 5 of the surgical principles. In spite of its ingeniousness, it is dangerous.

The Clamp and Suture operation described by the author fulfills all conditions and is entitled to be considered the most nearly ideal of any yet devised.

A new hemorrhoidal clamp designed to facilitate the last named operation was presented and strongly recommended.

### Etiology of Constipation.

By HORACE HEATH, M. D., Denver, Col.

Dr. Heath mentioned two groups—miscellaneous and mechanical. Under miscellaneous, the author regarded heredity as unimportant, but attention was called to the faulty instruction of children in certain families. He stated that the constipation of infancy was due to undeveloped muscles; and of old age, to inactivity and atonicity.

Under mechanical causes he considered,—diet, sedentary life, abnormal positions, angulations, coloptosis, and hypertrophy of the rectal valves.

The predisposing diseases mentioned were colitis, stricture, proctitis, fissure, hemorrhoids, fistula, polypi, enlarged prostate, and malignant growths.

### Physiology of Constipation.

By SAMUEL T. EARLE, M. D., Baltimore, Md.

In reviewing the Physiology of Constipation in the symposium read before the American Proctologic Society, June, 1911, Earle calls attention to the sensibility of the alimentary canal in connection with its bearing on constipation. It has been shown that the stomach and intestines are quite insensitive to tactile and thermal stimuli, but that the esophagus and anal canal are sensitive. The whole of the alimentary canal is, however, sensitive to distension, which produces at first discomfort and subsequently pain. The rectum appears to be more sensitive than the rest of the intestines to distension, so that a large fecal mass produces more discomfort when lodged in the rectum than in any other situation. As a result of this, the normal accumulation of feces in the pelvic colon is unaccompanied by any discomfort, whereas, the entry of feces into the rectum at once produces a sensation, which acts as a warning that defecation is necessary. The discomfort produced by the presence of a large mass of feces in the rectum is partly due to the pressure it exerts on the upper extremity of the sensitive anal canal. Prolonged retention of feces in the rectum leads to a blunting of its sensibility, so that comparatively little local discomfort is present in most cases of confirmed constipation. But in acute cases or cases of recent origin, in which the rectum is distended with feces much discomfort and occasionally severe pain is experienced. On the other hand, even a very large accumulation in the pelvic colon produces little or no discomfort in the intestine itself.

A large fecal accumulation in the rectum presses directly upon the anterior primary divisions of the third, fourth and fifth sacral nerve routes, as they

emerge from the sacral foramina. It may therefore lead to neuralgic pain referred to the sacro-coccygeal region. It is liable to cause suffering more from its constant presence than its severity; it is often as severe when the patient lies down as when he takes exercise, but some relief follows flexion of the lumbar spine. The muscles of the buttocks and back of the thigh, which receive a small part of their sensory and motor supply from the third sacral nerve route, may be the seat of similar pain. Neuralgic pain or parasthesia, in the form of tingling or a sensation of heat or cold may occur, in the course of the sciatic nerve, in the back of the thigh, and occasionally the sensation of cramp in the calf is produced. Pain is also occasionally felt in the hip-joint, it receives part of its nerve supply from the third sacral nerve. The roots which supply the muscles of the front of the thigh are situated out of reach of the distended rectum, so that in the exceptional cases in which pain is produced by constipation in this situation, it must be due to pressure exerted by a fecal mass in the iliac colon on the anterior crural nerve; and is accordingly only observed on the left side.

That these neuralgic pains are probably due to the direct presence of a large and hard mass of feces, on the sacral nerve-routes is shown by their instantaneous disappearance on completely evacuating the rectum by enemata, a form of treatment which was already advocated for sciatica by Columinus of Naples at the end of the eighteenth century.

Possibly the erections and seminal emissions, and the frequency of micturition and nocturnal incontinence, which occasionally result from large fecal accumulations in the rectum, are due to direct irritation of the third and fourth sacral nerves, and are not reflex in nature. The spasm of the sphincter ani and levator ani muscles, which has already been described as an occasional complication of the fecal impaction in the rectum, which occurs in constipation, may perhaps be in part due to pressure on the fourth sacral nerve routes.

Neuralgia of the testicles in men and dysmenorrhea in women are sometimes increased by the direct pressure in the rectum on the nervous supply of the testicles and uterus respectively.—Arthur F. Hertz, on Constipation.

### Bacteriology and Urinary Findings of Constipation.

By JOHN L. JELKS, M. D., Memphis, Tenn.

The author advances no new theories but expresses his views of the importance of both chemical and microscopical investigation in connection with clinical proctology, and the value of these examinations in cases of atonic constipation.

He refers to the importance of either finding, or eliminating, the presence of intestinal parasites that are known to produce lesions in the intestinal coats and ports of entry of bacteria or their toxins. He expresses the belief that the destruction wrought to the sub-mucous structures, the infiltration of plastic material and the contracting, distorting, scarred portion of the bowel, as also the consequent destruction of, and interference with the secreting glands, their ducts and the nerve supply may become important factors in the atonic condition of some patients.

The author believes it is important to make microscopic examinations in all cases of this character,—both of the crude and washed specimens, and of scrapings from the intestinal wall or from any lesion found in it. He also examines the urine chemically, and microscopically, believing this important, owing to the relationship and association of diabetes, kidney insufficiency and diseases of the kidney with cases of atonic constipation.

These examinations of the urine aid in determining the proper course of treatment, especially is this true when indicanuria, casts and sometimes traces of albumen, indicate the vicarious overwork of the tired and irritated kidneys, as also the intestinal



fermentation and coprostatic auto-intoxication, which results in some cases.

The author refers to the importance also of examination of the stomach contents after test meals have been given as these may furnish in some cases a clue to etiologic factors.

Blood examinations he finds quite important in determining the amount of opsonic resistance as also for finding infections in the blood, which matters by lowering the vitality may become factors in the atonic conditions which were being discussed.

### Pathology and Diagnosis of Constipation.

By WM. M. BEACH, M. D., Pittsburg, Pa.

Pathology of constipation is naturally considered under two general heads, namely:

1. Stasis due to altered secretions;
2. Stasis due to mechanical obstruction.

The first may be the result of neuroses, and acute fermentative indigestion, or a bacillary infection. The anaerobes may attack the contents of the bowel or the gut wall itself, leading to varying degrees of inflammation in the colon—as ulceration, hypertrophic and atrophic catarrh. The colon impaired functionally or traumatically leads to stasis and consecutive inhibition of the fecal excursion. Such impairment further disturbs the physiologic lines of defence against the auto-intoxications,—as

- (a) the intestinal mucosa, itself;
- (b) the liver, and
- (c) the antitoxic glands.

Collateral with these phenomena in constipation, are such factors as cholelithiasis, hypochlorhydria, cholangitis and appendicitis, as altered secretions incident to coprostasis.

Mechanical obstructions to be reckoned with include,—

1. Entropsis or Glenard's disease;
2. Gastropsis;
3. Dilatation of the colon;
4. Certain extra-mural and intra-mural sources of obstruction,—as pelvic tumors and displacements, nephropsis, enlarged glands, intussusception, malignant disease, etc.;
5. Acute angulation at the recto-sigmoid junction, hypertrophy of O'Bierne's sphincter, and stiff rectal valves;
6. Disease in the anal canal.

Diagnosis resolves itself into an analysis of the above conditions; to differentiate acute or chronic obstruction and the ordinary functional stasis which may also be accompanied by the various forms of colitis.

### Sequelae of Constipation, Including Auto-Intoxication.

By ALFRED J. ZOBEL, M. D., San Francisco, Cal.

In this paper the writer mentions many of those conditions which seem to have their origin in chronic constipation with auto-intoxication. He states that experimental evidence has not as yet demonstrated that they actually do so, but close observation and clinical experience tend strongly to confirm the theory.

He writes that while all constipated individuals do not necessarily suffer from those symptoms ascribed to auto-intoxication, yet, in his experience, most patients with auto-toxic symptoms are constipated. This may be without their knowledge, and they often deny in good faith that they are so; but proctoscopic examination generally proves the sigmoid and rectum to be loaded with fecal matter.

A report is given of the proctoscopic observations made on a number of cases of hypertrophic arthritis. In almost every instance the lower bowel was found filled with a fecal mass, although most of the patients positively stated that they had had an evacuation within an hour or two previous to the time of examination. Thorough colonic flushings invariably

brought about relief from pain, and in time marked improvement in their general condition.

These observations are in line with the theory advanced by various authors that arthritis reformans may be due to intestinal auto-intoxication.

Mention is made of the various muscular, arthritic, and neuralgic pains caused by absorption of toxins from the bowel. These are often misunderstood, and treatment instituted for rheumatism.

Congestion, irritation, and various disturbances, both functional and organic, of the uterus, tubes and ovaries in the female; the vesicles, urethra, and prostate in the male; and the bladder in both; may result from chronic constipation. This is due both to the proximity of these organs to the lower bowel and to their close physiological relationship.

It is noted that albuminuria may arise from intestinal stasis, and mention is made of the opinion advanced by various clinicians that a nephritis may even be caused thereby.

The role of constipation with auto-intoxication as causal factors of epilepsy, neurasthenia, and various mental conditions, as claimed by certain well known and competent observers, is stated here without comment.

The influence of these conditions on the heart, blood-vessels, and the blood; and its effects on the eye, ear, nose and throat are dilated on in this paper, and in support of these statements quotations are culled from the literature that has appeared on this subject during the past five years.

The writer further briefly mentions a few more of those conditions that are supposed to arise from chronic constipation with auto-intoxication, and concludes by agreeing with the trite observation of Boardman Reed that, "when we except the exanthems, malaria, syphilis, tuberculosis, and the diseases caused by traumatism, by metallic poisons, and by a few other toxic agents or infections from without, practically all the remaining maladies which afflict us and cut short our lives are now directly or indirectly traceable to auto-intoxication."

### Non-Surgical Treatment of Constipation.

By DWIGHT H. MURRAY, M. D., Syracuse, N. Y.

Dr. Murray stated that chronic constipation and its results was one of the worst of the foes to a healthful human race.

He had never known any medication to cure cases of constipation. As primary causes of all cases of constipation he considered carelessness, ignorance, and laziness to be of first importance. The whole medical profession should teach their clientele how to care for themselves, and to train their children in order that constipation could be eliminated by educational and prophylactic methods.

Medicines for the use of constipated people have increased until their number is almost countless. Advertisements which extol particular cathartics exploited by this or that pharmacist, are well nigh bewildering.

He makes the claim that all cathartics finally leave those who use them worse than before. He does not entirely interdict the use of drugs, as there are cases where they must be used, but almost wholly for temporary relief. He says that a mistaken notion exists in the minds of the laity that the feces is composed largely of debris of food. This, however, furnishes only a comparatively small portion of the fecal mass, the larger portion being deposited in the large intestine as the ash resulting from the products of metabolism.

He mentions various exercises, massage, deep breathing, climbing, rowing, electricity, etc., as being helpful in the treatment and cure of these cases.

Sigmoid injections of pure olive oil, castor oil or medicinal paraffin oil were recommended as aids in the treatment.

He said that hours could be spent over the various drugs and methods in detail—after it all we would

be obliged to say, that eternal vigilance as to regularity on the part of the patient must be exercised or a cure would not result.

The keynote of his paper is, education and regularity as to periodicity of the first daily stool. Finally he believed that the whole profession had a profound duty to perform for mankind in an educational way for emancipating the race from this insidious foe.

### The Surgical Treatment of Chronic Constipation.

By LOUIS J. HIRSCHMAN, M. D., Detroit, Mich.

Constipation is divided into two great classes; the one class being due to a lack of functional activity, i. e., dietetic error, improper habit, neural or trophic influences. The other class, which some of us have been pleased to designate as obstipation includes all cases whose impaired activity is due to mechanical interference with the normal peristaltic movements and expulsive function of the bowel.

Obstipation, or obstructive constipation may be caused by:

(1) The presence of any foreign body, occlusion, contracture, hypertrophy or accumulation in the intestinal canal.

(2) Displacements, acute angulations, distensions, neoplasms, adhesions or compressions of the bowel.

(3) Developmental defects and congenital deviations from normal.

Inasmuch as the surgical treatment of constipation, due to easily recognized local conditions, is obvious, they are dismissed with mere mention. Coloptotic constipation represents such a large percentage of cases of mechanical constipation that its discussion involves the most important field of surgery in the treatment of constipation. All patients with ptotic colons are not constipated, nor do all constipated patients suffer from coloptosis. There must be in addition to ptosis of the cecum, transverse or sigmoidal colons, a condition of functional inactivity due to atony of the bowel muscle.

Suspensions of ptotic colons by means of fixation by adhesions to the abdominal wall are unnatural and interfere with peristalsis. Restoration should be accomplished by shortening the natural support,—the mesentery. Lateral anastomoses between the most dependent loops of ptotic bowel is sometimes indicated. Above all, massage, both abdominal and internal rectal, is of primary importance in restoring function, and should be used along with either dietary or hygienic measures to restore bowel function.

### Cancer of the Rectum.

By J. RAWSON PENNINGTON, M. D., Chicago, Ill.

I take it we are all agreed as to the increasing frequency of cancer. At least it seems to me no other conclusion can be drawn from the following figures: According to the 12th U. S. census, cancer appears to have increased 12.1 deaths per 100,000 population in the previous decade. In Great Britain, so we learn from the work of Roger Williams, the deaths from cancer increased from 177 per million in 1840 to 885 per million living in 1905. Williams points out that while the population barely doubled from 1850 to 1905, the mortality from cancer increased more than six fold. Nor is the increase confined to the United States and Europe, it holds good for Japan, India and even for uncivilized countries. In short, cancer is one of the several diseases which is apparently increasing, by leaps and bounds, in

spite of our boasted progress in medicine, surgery and hygiene. Apart from the increased prevalence, the present death rate from malignant diseases is something dreadful to contemplate. Our anxiety in regard to malignant disease of the rectum is pardonable when we reflect that a good proportion of cancers involve this region. Williams found that 9.6 per cent. in males and 5.3 per cent. in females were located in the rectum. Is there anything that can be done to check this foe? The writer believes there is, and that this Society may be made a powerful factor for good in such a crusade. In Germany a similar crusade has been started against cancer of the uterus by Winters, agitating the subject both among the profession and the laity. It is estimated that the number of cases of inoperable cancer of this organ has been reduced over 30 per cent. as a result of calling attention to the early symptoms. Of the 2914 cases of rectal cancer in the male referred to by Williams 2592 patients were over 45 years of age and 2180 of the 2533 female patients. In the male sex again the average age, at which the onset was noted, was 49.7 years, the minimum being 16.75 and the maximum 74; while in the female sex the average was 50.4 years with a minimum of 21.8 and a maximum of 88 years. This brings me to the crux of my argument, that every person who has reached the so-called "cancerous age" should be examined periodically for evidence of commencing carcinoma not necessarily of the rectum alone but in the female for example, of the uterus also.

In 120 resections of the rectum for malignant disease, W. J. Mayo observes: "It is an unfortunate fact that, in the majority, cancer of the rectum is not recognized in time to obtain a radical cure." I said a moment ago that cancer in the beginning is a local disease. This granted, then early and thorough removal must lead to a cure. It has been shown that a large proportion of malignant growths originate in scar tissue. In cancer of the stomach, for example, the Mayos found that no less than 62% showed evidences of a previous ulcer. The rectal cancer patients frequently give a history of previous operations on the part. Does the cancer occur in the scar left from an operation for hemorrhoids done by one of the commoner methods—ligature, clamp and cautery, or some other technic leaving much scar tissue and sometimes stricture? May it not be occasionally engrafted on the scar following the usual incision method of operating for fistula? Here is a suggestion for us in our own work, secure smooth healing by resorting only to such procedures as leave the minimum of cicatricial tissue, hence, the least possible nidus for possible mischief in the future. With the co-operation of the public it seems to me we should learn much about cancer in the early stages. To educate the public we must—as has been well said—"organize, systematize, deputize, energize, supervise and economize." The field is broad and the opportunity is at hand. Shall we grasp it?

### Malformation of Rectum and Anus, with Report of Case.

By DONLY C. HAWLEY, A. B., M. D., Burlington, Vt.

The facts of modern embryology explain a majority, but not all developmental defects of the rectum and anus.

M. B., female, age 4 weeks, came under my observation in April, 1910. She had an imperforate anus, the rectum opening into vagina in the upper half of the recto-vaginal septum, opening one-half by one-eighth inch in size, the longer diameter



transverse, was evidently supplied with a sphincter, as the child had three or four well controlled movements daily. Anal depression was present and the vulva and vagina were normal, except as noted. The presence of uterus was normal or otherwise not demonstrated. There was no distension of rectum, no impulse and no prominence in perineum. The child was well nourished and otherwise normal. Operative interference postponed. The child is at present well and is 13 months old and weighs 22 pounds.

While this defect is sometimes seen, many cases reported, as atresia and vaginalis, are no doubt in reality imperforate anal canal with vulvar outlet, a malformation admittedly of common occurrence.

Cases in which intestine opens well up in vagina are not accounted for on embryologic grounds, the two structures being embryologically dissimilar and independent.

### Pruritus Ani, with Report of Cases.

By DONLY C. HAWLEY, A. B., M. D., Burlington, Vt.

In this discussion I do not refer to cases due to intestinal parasites, errors in diet, etc., in which the pruritus is relieved by proper attention to the causative condition, nor so much to the symptoms as to the pathologic condition of the skin and nerve endings, which condition is pathognomonic.

The nearly constant local cause of pruritus ani is abrasion and ulceration of the anal canal, accompanied by blind sinuses underneath or fissures in the muco-cutaneous lining.

Further, some cases are associated with chronic proctitis, which may be a factor in producing or increasing the anal abrasions or ulcerations.

The treatment I have adopted is as follows:

With the patient well anesthetized, the anal canal is dilated, and the ulceration, together with the sinuses and fissures, are thoroughly cauterized with the Paquelin cautery, and also the entire area of chronic dermal inflammation.

My aim is to destroy ulcerated areas, the thickened and altered skin and the pathologic condition of the terminal nerve fibres.

Case I. S. H. E., act. 62, came under my observation June, 1908. He had suffered with rectal troubles for 45 years. Twenty years ago he was operated on for fissure or fistula, was not certain which. He has had almost intolerable pruritus for eight years, and for the past year it has been so constant and unbearable, especially at night, that he has become a nervous wreck, and has lost 40 pounds in flesh and has been unable to continue his business.

Diagnosis.—Chronic pruritus ani. The skin was inflamed, soddened and thickened over a large area about the anus, with many deep cracks, and four or five ulcerations and abrasions in anal canal. Treatment as outlined. Result, cure and no return up to present time.

Case II. W. A., male, act. 38. History of pain in rectum for 20 years, and of severe and intolerable pruritus.

Diagnosis.—Chronic pruritus ani. There was a large ulceration in anal canal and three or four blind sinuses, with an area of white brittle and infiltrated skin with large cracks about anus. Operation, same as in Case No. I. Result, cure.

Other cases less severe have been operated upon during past three years, with satisfactory results. The treatment outlined is not new nor original, having been advocated by Mr. W. Mitchell Banks, and practiced by Mr. Fred C. Wallis. Ball's operation is designed to render anesthetic the skin over the undercut area. The operation described accomplishes the same end and besides destroys lesions in anal canal. The former operation has resulted in extensive sloughing. To the latter no such danger attaches.

### A Paper; Intestinal Stricture Following Ileo-Rectostomy—Report of a Case Was Read.

By FRANK C. YEOMANS, M. D., New York City, N. Y.

J. X., a man 46 years of age, was always strong and well but suffered from severe constipation of many years' standing. In October, 1909, an anterior sigmoidopexy was proposed for "prolapse of the sigmoid." Temporary relief followed, but three months later "peritonitis" developed. The same surgeon operated again, freed numerous adhesions, divided the ileum just proximal to the colon, closed the abnormal end and implanted the oral end of the ileum into the rectum. Relief of the constipation was prompt but when he first consulted Dr. Yeomans, in July, 1910, it had returned in an obstinate form with all the symptoms of a marked auto-toxemia superadded.

The proctoscope passed easily, but no opening could be discovered in the rectum or the sigmoid. An excellent radiograph, by Dr. L. G. Cole, proved the colon and sigmoid to be unobstructed.

Concluding that the feces, following the path of least resistance, were accumulating in the colon, Dr. Yeomans did an appendicostomy at the New York Polyclinic Hospital, December 16, 1910. Irrigations through the appendix relieved all symptoms for ten weeks. Constipation and toxemia then returned, however, and he performed an exploratory laparotomy March 14, 1911. The ileum ran down into the left side of the pelvis and was lost in a mass of dense adhesions. A broad lateral anastomosis was made between the ileum, just above the adhesions, and the sigmoid. The patient reacted well from the operation, but developed a double pneumonia, 18 hours later, to which he succumbed on the fifth day. The urine was suppressed the last 24 hours of his life. The bowels moved on the second day, and, thereafter, three or four times daily. At the autopsy no peritonitis was found. The specimen removed, consisting of ileum, sigmoid, and rectum intact, showed perfect union of the recent lateral ileo-sigmoidostomy. The remarkable feature of the old end-to-side ileo-rectostomy was that the opening was so constricted that it would scarcely admit a 16 F. catheter and physiologically amounted to a stricture.

The noteworthy features of the case were: 1. Reverse peristalsis of the colon, evidenced by the large quantities of feces expelled by the irrigations through the appendicostomy. 2. The radiograph was valuable in demonstrating a patent sigmoid and colon, thereby proving that the obstruction was in the small intestine. 3. Failure of the proctoscope to reveal the site of the opening does not discredit the diagnostic value of that instrument but shows the extreme degree of contraction of the opening. 4. The many actions of the bowel signify clearly that the physiological function would have been permanently restored had the patient survived the pneumonia. The practical lesson derived from a study of the case is that lateral anastomosis is superior to end-to-side union, especially in the presence of inflammation.

### Syphilis of the Ano-Rectal Region.

By LEWIS H. ADLER, Jr., M. D., Philadelphia, Pa.

The author related the history of two cases of syphilis in which no outward visible effects of the patient's grave condition existed, except about the anus. In both instances, the anus was surrounded by syphilitic condylomata; the parts were bathed in a fetid sero-purulent discharge and the patients' mouths were affected with mucous patches. In one case the patient was markedly improved by the use of salvarsan and the other one improved under the ordinary mercurial treatment, but disappeared from observation before a cure could be effected.

The writer then took up the consideration of the usual manifestations of the disease as affecting the localities under consideration, stating that the primary lesion,—always a chancre,—occurs about the anal region much more frequently than is usually

supposed. That chancre of the rectum proper, in this country, is a very rare occurrence. Where sodomy and other unnatural vices are practiced, infection may, and, possibly does occur with greater frequency. That females are oftener affected than males and while the occurrence of the initial lesion about the anus or within the rectum of men, is almost positive evidence of the practice of sodomy; in women, the possibility should be remembered of the infection of these parts arising through contact with the male organ, or from the vaginal discharges.

That the diagnosis of all doubtful cases of syphilis can now be definitely determined when the patient's blood shows a positive Wassermann reaction and by finding the presence of spirocheta pallida.

Attention was called to the fact that cases of ano-rectal syphilis develop the usual symptoms of the disease as when it affects other parts of the body, and, next to the mouth and throat, the anus is the most frequent site for mucous patches. Attention was called to the hereditary or congenital form of the disease; and, among the tertiary lesions, the following principal varieties were enumerated:—Gum-mata; destructive ulceration; stricture; ano-rectal syphiloma, and, proliferating proctitis. The article concluded with a brief consideration of the treatment of the disease in which attention was directed to the necessity of care being exercised in looking after the hygiene in all its phases; that the constitutional treatment of the disease should not be commenced until a positive diagnosis is established; that as no one form of mercury, or any one of the various methods of its administration may be employed successfully in all cases, the individual requirements of each person should be the guide. Ehrlich's remedy,—salvarsan,—had in several instances been employed with excellent results, but the author would not depend upon its employment alone, believing that mercury should supplement its use. In the use of salvarsan, it was advised that no one treat patients with it, except those specially trained in its preparation and administration.

#### Foreign Bodies in the Rectum.

By T. L. HAZZARD, M. D., Pittsburgh, Pa.

The paper consisted mostly of a recital of four recent cases of foreign bodies in the rectum. Two were in children, in which the substances were accidentally swallowed, and the others were adults who introduced the bodies directly into the rectum through some perversity:—

Case 1. Baby girl, two years old. Referred for dysentery of three months' duration. The chief symptoms being bloody stools, mucus and tenesmus. No digital or other local examination had previously been made. Examination with the little finger showed the presence of something lying across the bowel, low down. A guarded pair of scissors was introduced and this body was easily cut in half and removed. It proved to be a match, or at least nearly two-thirds of one. Although the ends of this match were firmly fixed in the sides of the intestine, no abscess followed. Recovery was rapid and uneventful.

Case 2. Boy, a little older than the first case. The symptoms, conditions and procedure were the same as the preceding case but the foreign body was a bone from a frog's leg. These cases show the necessity for rectal examinations. In one case a bacterial microscopical test had been made but was rather misleading than otherwise.

Case 3. Self introduction into the rectum of a prescription bottle, a "Baltimore oval" 3 oz. The mouth was upward. After considerable trouble it was removed by means of a blunt hook. It had been in the bowel for three days. No anesthetic necessary. The case progressed without any un-

toward incident. He gave no reason for his action, and no questions were asked, as he would not have told the truth.

Case 4. Adult, aged 45. Had been a cow-puncher. At present has no occupation. Came to Allegheny General Hospital. Examination showed the presence of a very thin beer glass, 2 inches wide, at the top, and 3½ inches tall. Sphincters contracted. No bleeding and but little discomfort. In attempting to remove it it was broken. After it was extracted there was considerable bleeding from the rectum. He developed pelvic peritonitis and a rather large tumor developed in the left iliac region. This passed away and he was discharged in about three weeks, not altogether well of the pelvic pains. General treatment in all cases was rest in bed, with frequent washing of the bowel with a 1 per cent solution of creoline and normal salt.

#### The Limitations of the Use and the Methods of Employing Local Anesthesia in Rectal Surgery.

By LEWIS H. ADLER, Jr., M. D., Philadelphia, Pa.

The author quoting from a recent article of a distinguished proctologist states:—"Patients seriously object to a general anesthetic and because of this and the fact that most minor ano-rectal operations can be painlessly performed under local anesthesia induced by sterile water, or a one-eighth of one per cent. eucain solution, I have discarded general narcosis in about eighty per cent. of my rectal operations."

In taking exception to this general statement he questions the wisdom of sending it broadcast and advocating a method which in the hands of one not particularly skilled in rectal work would in his opinion only lead to disaster. He calls attention to the water-logging of the tissues, when sufficient anesthetic be used, whether cocain, eucain, sterile water, or other agents and to the subsequent retarding of the recovery of the patient and the danger of hemorrhage from allowing patients to be about on their feet, citing a case which proved conclusively the force of his arguments.

The author claimed a thorough understanding of the underlying conditions can rarely be made without the aid of general anesthesia. The latter when administered by a competent anesthetizer is not attended with any more danger or risk than the indiscriminate employment of local anesthesia. He calls attention to the fact that it is essential to remove the anesthetic when the sphincter is divulsed, as deep inspiration thus induced would cause too much of the drug to be inhaled suddenly, and might cause alarming or fatal results. Rectal diseases, which may be treated under local anesthesia he considers under two divisions:—(1) Those admitting of office treatment; (2) those requiring treatment at home or in a hospital. In the opinion of the author external piles or other excrescences around the anal region, some fissures-in-ano, and abscesses (of not too large an extent), are the only affections coming within the range of operations which can with propriety be performed in the office under local anesthesia. He warns the operator that trivial fistula, often have diverticulæ and are not readily discoverable except under general anesthesia. Under the second heading he speaks of internal colostomy and internal hemorrhoids and warns the operator that the temperament of the patient must always be taken into account. Highly nervous patients will not stand manipulation of the intestines and the abdominal muscles are apt to be rigid. The author mentions the different drugs used in local anesthesia, the vibratory method of Hirschman, the methods used in getting the parts anesthetized and the after treatment. The trend of the article is not to throw cold water on the valuable procedure of local anesthesia, but to insist that the cases must be suitable and in the hands of men of experience.



## BOOK REVIEWS

**A Handbook on Practical Treatment.** By many writers. Edited by John H. Musser, M. D., LL.D., Professor of Clinical Medicine in the University of Pennsylvania, Philadelphia, and A. O. J. Kelly, A. M., M. D., Assistant Professor of Medicine in the University of Pennsylvania, Philadelphia. Volume II, Cloth. Price, \$6 net. Pp. 865, with 103 illustrations. Philadelphia. W. B. Saunders Co. 1911.

This volume, the second of the three volumes to be published by the authors, treats of forty-three subjects, written by twenty-eight contributors.

In the introductory article by Sir Clifford Allbutt is a careful discussion of the principles of cardiac therapeutics. This is followed by a brief description, and mode of treatment, of forms of acute cardiac disease, including endocarditis, pericarditis, and hemopericardium. Much stress is laid by the author on rheumatism as a cause of endo and pericarditis, and the value of frequent heart examinations. Special reference is made to the tonsils as a focus of infection. He advises the use of salicylates combined with the bicarbonate of soda, in large doses, emphasizes the importance of position and the care of the tonsils and throat. Much space is given to myocarditis, with a discussion of its physical signs, of the basis of treatment, and of the failure of the heart from poisoning of the muscular fibers. In acute cardiac disease he uses digitalis with caution, and prefers strophanthus and caffeine as a means to increase muscular tone.

In discussing chronic diseases of the heart, a general review of the more important pathological conditions are given, cardiac tests, including the Gander test described, and the latest drug therapy outlined. Several pages are given to diet, hydrotherapy, exercise, nursing, and climate. Functional diseases, chronic valvular diseases, and diseases of the arteries, concludes the section. This section covers about a sixth of the volume and demands special study.

"Typhoid Fever" by Rufus Cole is full of practical points. Prophylaxis and disinfection are well gone into. Serum therapy is outlined, with the conclusion that the various sera used at the present time possess little value. The greater part of this section is devoted to the various forms of diet advocated, with many illustrations on the technique of hydrotherapy as a therapeutic agent. The surgical complications are brought out by John M. Finney.

Hobart Amory Hare, on "Pneumonia," covers the treatment of the disease in a few pages, with far too few words on the open air treatment. With the brilliant results obtained by this method, a more thorough recognition of this phase of the treatment should be given. Diphtheria is discussed by Weaver, in a very ably written article. In speaking of the principles upon which the action of diphtheria antitoxin rests, he insists that the dose be large, and given at frequent intervals early in the disease. He speaks of the treacherousness of scarlet fever, and emphasizes the importance of care in the mildest cases.

"Tuberculosis," by Osgood Otis, covers one hundred and seventy-seven pages and is the most comprehensive article in the volume. In such a brief review not enough can be said of this important section. Along with individual and general prophylaxis he calls our attention to the various kinds of open air schools, which are aiding so much in the fight against disease. The details of open air life are exhaustive in the extreme, with descriptions of many of the large state and private sanatoria, in this and foreign countries. A general discussion on diet is given, with samples of dietaries from differ-

ent institutions. The author in summing up the tuberculin treatment, considers the tolerance method advocated by Trudeau, the best method, and says that tuberculin used by carefully trained men, is indicated in the modern management of the disease.

"Syphilis" is written by two authors, J. William White, and Alfred C. Wood, and contains nothing new on the treatment of the subject. In advertising this volume the publishers emphasized the space given to "Salvarsan" in this section, but it is brief and general, and gives neither the dosage or methods of administration. Edward Martin, speaking of the vaccine therapy in chronic gonorrhea, considers the best results, up to date, are obtained from an autogenous vaccine.

This work contains many points on the prophylaxis and quarantine in the infectious diseases, which should be helpful to the reader, and in Schamberg's contribution on "Variola" a practical discussion on these points is given. The importance he lays on vaccine in prophylaxis and treatment is also instructive.

Lewellys F. Barker, in his article on cerebrospinal fever, outlines in a concise manner the method of administration of Flexnor's serum, with a classification of the bacteria causing the symptoms.

"Plague" and "Cholera Asiatica" are under the same authorship, with the history, mode of infection and mortality of these fatal diseases.

Among the infectious diseases left to be described are "Influenza" and "Rheumatism" by Stengel, "Pertussis" and "Mumps," by McC. Hamill, and "Dysentery" by Charles F. Martin. Tropical diseases, including a well written article on "Malaria" by Roseman and Anderson, deserves special mention.

The volume ends with an article on "Animal Parasites," by Reisman, which covers admirably this field.

From the excellence of the articles, and the standard set by the authors in the volume, there is no doubt that the completed work will be one of the most valuable thus far published, and will be worthy of recommendation to the general practitioner.

H. H. Y.

**Gonorrhea in the Male.** By Abr. L. Wolbarst, M. D., Publisher International Journal Surgery Co., N. Y., 1911.

Wolbarst's book on "Gonorrhea in the Male" is a terse manual laden with thoroughly digested material on diagnosis and treatment. It is a well written guide picturing in a clear and concise manner the experiences of a practical specialist, who believes in conservatism.

As it is a volume affording a comprehensive survey, within a compact space, preserving all essentials, it can be safely recommended to the general practitioner.

L. G.

**"What Shall I Eat?"** By Dr. F. X. Gourard. Translated by F. J. Rebman. Published by Rebman Co. N. Y. 1911.

The author, like most French writers, presents his subject in an interesting manner. While covering the subject most scientifically, his style always remains graceful and his language simple. Physicians who have not the time or patience to study the larger works on dietetics, as well as those who have studied them but whose ideas are not well crystallized on the subject, will derive much pleasure and lasting benefit from this book. It is furthermore a work that can safely be recommended to laymen, healthy or sick, who are too often prone to read and follow the teachings of faddists, of such fruitarians as the Christians or of the Sinclair (here the designation faddist is ultra charitable) starvers.

R. B.

## BOARD OF EXAMINERS, AUGUST SESSION.

School of Medicine.	Passed.	Date of Graduation.	Percentage.
Cal. (Ecl.) Med. Coll., Cal.....		5, 16, 06	77.3*
Coll. of P. & S., San Francisco, Cal.....		6, 8, 11	85.9
Coll. of P. & S., San Francisco, Cal.....		6, 8, 11	84.9
Coll. of P. & S., San Francisco, Cal.....		6, 8, 11	84.6
Coll. of P. & S., San Francisco, Cal.....		6, 8, 11	77.3
Coll. of P. & S., San Francisco, Cal.....		5, 19, 09	75.6*
Coll. of P. & S., San Francisco, Cal.....		6, 8, 11	75.4
Coll. of P. & S., San Francisco, Cal.....		5, 17, 06	75*
Coll. of P. & S., San Francisco, Cal.....		5, 20, 09	75.0
Cooper Med. Coll., San Francisco, Cal.....		5, 12, 11	93.1
Cooper Med. Coll., San Francisco, Cal.....		5, 12, 11	89.9
Cooper Med. Coll., San Francisco, Cal.....		5, 12, 11	89.6
Cooper Med. Coll., San Francisco, Cal.....		5, 12, 11	89.0
Cooper Med. Coll., San Francisco, Cal.....		5, 12, 11	89.0
Cooper Med. Coll., San Francisco, Cal.....		5, 12, 11	87.9
Cooper Med. Coll., San Francisco, Cal.....		5, 12, 11	87.7
Cooper Med. Coll., San Francisco, Cal.....		5, 12, 11	87.7
Cooper Med. Coll., San Francisco, Cal.....		5, 12, 11	87.5
Cooper Med. Coll., San Francisco, Cal.....		5, 12, 11	87.5
Cooper Med. Coll., San Francisco, Cal.....		5, 12, 11	87.1
Cooper Med. Coll., San Francisco, Cal.....		5, 12, 11	87.0
Cooper Med. Coll., San Francisco, Cal.....		5, 12, 11	86.8
Cooper Med. Coll., San Francisco, Cal.....		5, 12, 11	86.2
Cooper Med. Coll., San Francisco, Cal.....		5, 12, 11	86.1
Cooper Med. Coll., San Francisco, Cal.....		5, 12, 11	86.1
Cooper Med. Coll., San Francisco, Cal.....		5, 12, 11	84.2
Cooper Med. Coll., San Francisco, Cal.....		5, 12, 11	84.1
Cooper Med. Coll., San Francisco, Cal.....		5, 12, 11	82.2
Cooper Med. Coll., San Francisco, Cal.....		5, 6, 10	82.1
Cooper Med. Coll., San Francisco, Cal.....		5, 12, 11	81.5
Cooper Med. Coll., San Francisco, Cal.....		5, 5, 10	81.1***
Cooper Med. Coll., San Francisco, Cal.....		5, 5, 10	79.9***
Hahnemann Med. Coll. of the Pac., S. F., Cal.....		4, 28, 11	88.2
Hahnemann Med. Coll. of the Pac., S. F., Cal.....		4, 28, 11	84.1
Hahnemann Med. Coll. of the Pac., S. F., Cal.....		4, 28, 11	83.3
Hahnemann Med. Coll. of the Pac., S. F., Cal.....		4, 28, 11	82.5
Hahnemann Med. Coll. of the Pac., S. F., Cal.....		4, 28, 11	78.5
Hahnemann Med. Coll. of the Pac., S. F., Cal.....		4, 28, 11	77.0
University of California.....		6, 1, 11	90.4
University of California.....		5, 16, 11	86.9
University of California.....		5, 16, 11	86.5
University of California.....		5, 16, 11	85.8
University of California.....		5, 16, 11	85.8
University of California.....		5, 16, 11	85.2
University of California.....		7, —, 11	85.1
University of California.....		6, 1, 11	82.1
University of California.....		6, 1, 11	78.9
University of So. Cal.....		6, 15, 11	84.0
University of So. Cal.....		6, 15, 11	81.3
University of So. Cal.....		6, 15, 11	80.7
University of So. Cal.....		6, 15, 11	77.9
University of So. Cal.....		6, 26, 08	75**
University of So. Cal.....		6, 15, 11	75.0
Atlanta Coll. of P. & S., Ga.....		4, 1, 99	71.9 plus 5-76.9
Baltimore Med. Coll., Md.....		4, —, 96	84.0 plus 5-89.0
Cornell Univ. Med. Coll., New York.....		6, 14, 11	81.4
Coll. P. & S., Chicago, Univ. of Illinois.....		4, 18, 00	85.6 plus 5-90.6
Coll. P. & S., Chicago, Univ. of Illinois.....		5, 20, 02	81.4
Coll. P. & S., Chicago, Univ. of Illinois.....		4, 3, 94	76.1 plus 5-81.1
Coll. P. & S., Chicago, Univ. of Illinois.....		4, 20, 97	75.0 plus 5-80.0
Coll. P. & S., Chicago, Univ. of Illinois.....		6, 7, 10	78.8
Coll. P. & S. of Columbia Univ., New York.....		5, —, 09	90.2
Coll. P. & S. of Columbia Univ., New York.....		10, 19, 96	76.3 plus 5-81.3
Ensworth Med. Coll., Missouri.....		5, 2, 08	84.6*
Georgetown Univ., Med. Sch., D. C.....		6, 14, 11	85.7
Georgetown Univ., Med. Sch., D. C.....		6, 14, 11	84.6
Geo. Washington Univ., Washington, D. C.....		6, 3, 08	75.0
Harvard Univ., Mass.....		2, 23, 10	86.7
Harvard Univ., Mass.....		6, 30, 09	86.5
Harvard Univ., Mass.....		6, 28, 11	80.7
Johns Hopkins Med. Sch., Md.....		6, —, 11	89.9
Johns Hopkins Med. Sch., Md.....		6, 9, 08	85.8
Johns Hopkins Med. Sch., Md.....		6, 13, 11	83.3
Long Island Coll. Hosp., N. Y.....		5, 18, 98	71.1 plus 5-76.1
Miami Med. Coll., O.....		6, 1, 08	79.2*
Miami Med. Coll., O.....		—, —, 90	†



Medico-Chirurgical Coll. of Philadelphia.....	6, 3, 11	77.4	
Missouri Med. Coll., Mo.....	3, 24, 96	75.0	plus 5-80.0
Northwestern Univ. Med. Sch., Illinois.....	6, 14, 11	90.4	
Northwestern Univ. Med. Sch., Illinois.....	6, 9, 09	84.1	
Northwestern Univ. Med. Sch., Illinois.....	6, 14, 11	82.6	
Northwestern Univ. Med. Sch., Illinois.....	6, 14, 11	79.1	
Northwestern Univ. Med. Sch., Illinois.....	6, 16, 04	77.6	
Ohio Med. Univ., Ohio.....	4, 5, 98	79.8	plus 5-84.8
Rush Med. Coll.....	6, —, 99	88.8	plus 5-93.8
Rush Med. Coll.....	5, 26, 97	86.2	plus 5-91.2
Rush Med. Coll.....	12, 20, 09	90.6	
Rush Med. Coll.....	2, 21, 82	74.9	plus 10-84.9
Rush Med. Coll.....	6, 21, 00	79.2	plus 5-84.2
Rush Med. Coll.....	6, 21, 00	77.8	plus 5-82.8
St. Louis Univ. Sch. of Med. Mo.....	6, 7, 11	77.2	
St. Louis Univ. Sch. of Med. Mo.....	6, 7, 11	77.0	
St. Louis Med. Coll. or Med. Dept. Wash. Univ. Mo.....	4, 29, 97	77.3	plus 5-82.3
State Univ. of Iowa, Coll. of Homeo. Med.....	3, 14, 93	70.0	plus 5-75.0
Society of Apothecaries, London.....	1, 17, 00	75.0	plus 5-80.0
Trinity Med. Coll., Ont., Can.....	4, 7, 98	75.0	plus 5-80.0
Univ. of the City of New York.....	4, 7, 93	79.6	plus 5-84.6
Univ. of Illinois.....	4, 18, 00	85.6	plus 5-90.6
Univ. of Illinois.....	5, 20, 02	81.4	
Univ. of Mich.....	6, —, 11	87.3	
Univ. of Mich.....	12, —, 10	78.6	
Univ. of Penn.....	6, 21, 11	86.6	
Univ. of Penn.....	—, —, 99	†	
Univ. of Penn.....	6, 16, 09	80.6	
Univ. of Pittsburg, Penn.....	6, 15, 10	83.7	
Univ. of Texas.....	5, 31, 10	75.0	
Western Reserve Univ. Med Dept., O.....	6, 12, 02	75.7	
Woman's Med. Coll., Penn.....	6, 1, 10	83.3	

## Failed.

Coll. P. & S., San Francisco, Cal.....	6, 8, 11	63.7	
Coll. P. & S., San Francisco, Cal.....	6, 25, 02	67.1*	
Univ. of So. Calif.....	6, 15, 11	70.1	
Cleveland Homeo. Med. Coll., O.....	3, 22, 92	41.1	plus 5-46.1**
Coll. P. & S., Chicago, Ill.....	6, 5, 06	69.4	
Coll. P. & S., Baltimore, Md.....	3, 18, 90	56.7	plus 10-66.7
Coll. P. & S., Baltimore, Md.....	—, —, 88	53.7	plus 10-63.7*
Coll. P. & S., Keokuk, Iowa.....	3, 16, 97	61.3	plus 5-66.3
Hahn. Med. Coll. & Hosp., Philadelphia.....	6, 2, 09	61.7	
Kentucky Sch. of Med., Ky.....	6, 18, 91	66.3	plus 10-76.3*
Louisville Nat. Med. Coll., Ky.....	5, 9, 89	23.4	plus 10-33.4*
N. W. Univ. Woman's Coll., Ill.....	3, 1, 81	60.8	plus 15-75.8*
Pulte Med. Coll., Ohio.....	3, 27, 94	67.3	plus 5-72.3**
Rush Med. Coll.....	2, 19, 84	58.1	plus 10-68.1
Royal Univ. of Naples, Italy.....	12, 18, 03	51.3	
Syracuse Med. Coll., N. Y.....	6, —, 08	71.1	
St. Louis Univ., Mo.....	5, 22, 06	63.4	
Univ. of Athens, Greece.....	12, 20, 02	65.5	
Univ. of Penn.....	6, 21, 11	71.6	
Wooster Univ., Med. Dept.....	—, —, 80	10.1	plus 15-25.1

## Osteopathy—Passed

American Sch. of Osteopathy.....	6, 4, 08	78.4	
Los Angeles Coll. of Osteopathy.....	6, 1, 11	87.1	
Los Angeles Coll. of Osteopathy.....	6, 1, 11	83.6	
Los Angeles Coll. of Osteopathy.....	6, 1, 11	79.5	
Los Angeles Coll. of Osteopathy.....	6, 1, 11	79.0	
Los Angeles Coll. of Osteopathy.....	6, 2, 10	78.3	
Los Angeles Coll. of Osteopathy.....	6, 1, 11	77.9	
Los Angeles Coll. of Osteopathy.....	6, 1, 11	77.9	
Los Angeles Coll. of Osteopathy.....	6, 2, 10	76.0	
Los Angeles Coll. of Osteopathy.....	1, 27, 10	75.6	
Los Angeles Coll. of Osteopathy.....	1, 26, 11	75.4	
Los Angeles Coll. of Osteopathy.....	6, 2, 10	75**	
Los Angeles Coll. of Osteopathy.....	6, 1, 11	75.0	
Los Angeles Coll. of Osteopathy.....	6, 2, 10	75.0*	
Pac. Coll. of Osteopathy.....	6, 15, 11	86.5	
Pac. Coll. of Osteopathy.....	1, 26, 11	83.0	
Pac. Coll. of Osteopathy.....	6, 15, 11	79.2	
Pac. Coll. of Osteopathy.....	6, 15, 11	79.0	
Pac. Coll. of Osteopathy.....	6, 15, 11	75.8	
Pac. Coll. of Osteopathy.....	6, 15, 11	75.4	
Pac. Coll. of Osteopathy.....	6, 15, 11	75.0	
Pac. Coll. of Osteopathy.....	6, 15, 11	75.0	
Pac. Coll. of Osteopathy.....	1, 26, 11	75.0	

**Osteopathy—Failed.**

American Sch. of Osteopathy.....	6, 5, 11	69.1
Los Angeles Coll. of Osteopathy.....	6, 1, 11	70.8
Los Angeles Coll. of Osteopathy.....	6, 1, 11	69.9
Los Angeles Coll. of Osteopathy.....	6, 1, 11	69.2
Los Angeles Coll. of Osteopathy.....	6, 1, 11	67.9
Los Angeles Coll. of Osteopathy.....	6, 1, 11	67.8
Los Angeles Coll. of Osteopathy.....	6, 1, 11	66.3
Los Angeles Coll. of Osteopathy.....	6, 1, 11	65.2
Los Angeles Coll. of Osteopathy.....	6, 1, 11	65.0
Los Angeles Coll. of Osteopathy.....	1, 27, 10	55*
Los Angeles Coll. of Osteopathy.....	1, 26, 11	52.4*
Pac. Coll. of Osteopathy.....	6, 15, 11	70.7
Pac. Coll. of Osteopathy.....	6, 15, 11	67.8
Pac. Coll. of Osteopathy.....	6, 23, 10	64.5*
Pac. Coll. of Osteopathy.....	6, 15, 11	62.1

**Chiropractic—Failed.**

Carver-Denny Chiropractic Coll., Okla.....	8, 15, 08	38.2
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**New Licentiates.**

B. F. Andrews, J. A. Bacher, W. I. Baldwin, A. F. Banta, J. Y. Bartholomew, G. D. Beebe, E. J. Best, E. J. Bittman, J. B. Blackshaw, F. D. Bland, M. Bland, E. M. Boggess, C. S. Bossert, W. T. Boyd, J. B. Bradley, J. R. Brown, Robert Brown, G. C. Bryan, L. Bryan, F. J. Bryant, B. H. Bush, Edmund Butler, C. B. Caldwell, W. H. Campbell, M. F. Clark, J. M. Clarke, J. S. Cochran, J. V. Cocke, E. H. Coleman, H. A. Collings, C. D. Collins, A. Compagnon, S. Q. Coolidge, J. W. Crossan, R. L. Crum, P. J. Cuneo, F. H. Curtiss, L. Daily, P. de Obarrio, L. DeVille, A. H. Domann, E. D. Downing, M. Dranga, W. P. Dresser, R. G. Duffy, H. C. Evans, C. E. Fenner, L. J. Flanagan, A. L. Fox, H. A. Gallup, V. P. Gardner, M. A. Genung, A. S. Granger, A. E. Gray, E. E. Gray, E. R. Guinan, J. A. Hadley, C. Hall, R. W. Hartwell, J. C. Harrington, A. S. Hickox, A. R. Howard, H. O. Hund, J. Jacobs, W. R. Jacobs, M. D. W. Jeffs, E. E. Johnson, I. W. Keith, M. A. J. Kinney, E. S. Kilgore, L. O. Kimberlin, F. J. Leavitt, O. Lewis, H. Lissner, R. K. Macklin, A. F. Maisch, H. H. Markel, D. L. Martin, A. M. Massie, C. K. Mathias, A. D. McCalla, L. R. McCalla, W. B. MacCracken, F. A. McManus, B. F. Miller, J. L. Miller, N. D. Morgan, J. R. Morris, J. C. Negley, J. C. E. Nielsen, A. L. Obear, M. W. Pascoe, D. Petersen, F. W. Phelps, V. H. Podstata, F. S. Ray, F. B. Reardan, J. R. Richards, J. W. Richards, H. E. Rickels, H. V. Riewel, E. H. Risley, O. T. Roberg, A. Roncovieri Jr., R. C. Ryan, F. C. Sage, S. M. Samuels, M. J. Seid, L. Shulman, H. H. Smith, N. F. Sprague, K. J. Staniford, Jas. Steinberg, V. E. Stork, A. V. Stoughton, E. C. S. Synge, F. S. M. Talbot, L. H. Thayer, D. Turney, J. Visalli, H. L. von Werthern, H. G. Watters, G. B. Wilcox, Samuel Wilson, J. M. Wolfsohn, H. R. Yakeley, A. Zuber, L. LeR. Krebs and J. J. Kyle.

†Certificate granted, account, honorably discharged surgeon. U. S. Army.

**MEDICAL DEFENSE.**

Philip Mills Jones.

Secy. Medical Society of the State of California,  
San Francisco, Calif.

Dear Doctor:

I wish to express my sincere thanks to the State Medical Society for the able way in which your attorneys, W. W. Kaufman and H. A. van C. Lorchiana handled my defense in a malpractice suit brought against me for \$20,450. The jury brought in a unanimous verdict in my favor on the first ballot.

Although the trial occupied the attention of the Superior Court for three days, it did not cost me a cent. The feeling of having high class counsel to the courts of last resort was a great consolation.

From the experience which I have had I can assure any conscientious practitioner that he need have no fear of the final outcome of a suit defended by our State Society. I am certain I had much better service than any far-away insurance concern could have given.

Wishing you success in your good work and with many thanks, I am,

Very truly yours,

H. B. CAREY.

Aug. 12, 1911.

**THE MARGARET FAHNESTOCK TRAINING SCHOOL.**

The new addition to the Margaret Fahnestock Training School of the New York Post-Graduate

Medical School and Hospital is completed, and provides accommodation for 139 nurses.

The former building accommodated 67, and was inadequate for the needs of the Medical School and Hospital building, now nearing completion.

**CONSTIPATION.**

The general practitioner's attention is directed to the proceedings of the American Proctological Society, reported in this number. The symposium on the ever present problem of constipation has a value to all of us apart from all specialism.

**NEW MEMBERS.**

Lord, F. K., Comptonville.  
Williamson, J. M., San Francisco.  
Woodward, A. P., San Francisco.  
White, J. L., Sacramento.  
Moore, J. A., Dinuba, Cal.  
Gallion, T. W., Davisville.  
Nutting, C. W., Etna Mills.

**DEATHS.**

Foster, H. Jefferson, Cucamonga.  
Phelan, Gregory; died in Beguin.  
Stanley, H. B., Tuolumne, Cal.  
Pillsbury, E. S., Los Angeles.



# California State Journal of Medicine.

Owned and Published Monthly by the

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## IMPORTANT NOTICE!

All Scientific Papers submitted for Publication must be Typewritten.

Notify the office promptly of any change of address, in order that mailing list and addresses in the Register may be corrected.

VOL. IX NOVEMBER, 1911. No. 11

## EDITORIAL NOTES.

The conditions in which icterus is observed are so numerous as to lead to much controversy in regard to its pathogenesis. Apart

**ICTERUS BY** from those cases due to pure  
**HEMOLYSIS.** mechanical obstruction, icterus may possibly be due to swelling

of the liver cells themselves, causing a narrowing of the finer bile ducts and rendering the passage of abnormally viscid bile quite difficult. In toxæmic cases, this action is quite probable, the increased blood destruction leading to excessive formation and inspissation of the bile.

There is to date no definite confirmation of Minowski's ingenious hypothesis that, under certain conditions, perverted function of the liver cells may bring about the discharge of bile into the lymph and blood, in the complete absence of any obstruction.

We have long had experimental proof that massive destruction of erythrocytes by hemolytic poisons could produce icterus. The much-wished-for clinical proof has been furnished by the work of Chauffard and confirmed by that of Widal, Abrami, Brulé, Oettinger of Paris, Parkes-Weber of England and von Stejskal of Austria (to mention only the pioneers).

It was shown that in a number of cases there exists a marked fragility of the red blood corpuscles on exposure to hypotonic solutions of sodium chlorid. There is also a decrease in the average size of the

red blood corpuscles, and, on vital staining, peculiar basophilic granulations of the erythrocytes are seen, their occurrence being interpreted as an indication of active blood regeneration.

"Hemolytic jaundice" is now accepted by most clinicians as a distinct clinical entity, and is here considered as such.

A number of the patients are congenitally icterics, and the disease sometimes occurs in families. Jaundice may come on immediately after birth or not until puberty. There is always a moderate anemia, in spite of which subjective symptoms are usually absent. Icterus is usually not intense, there are no signs of obstruction of the bile ducts, and symptoms of cholemia, such as bradycardia, pruritus, xanthomas and hemorrhages are likewise absent in spite of the presence of bile pigment (but not of urobilin) in the blood. The stools are highly colored, the urine contains no bile. The spleen is practically always enlarged in the congenital cases. It is probable that some so-called splenic anemias are really instances of this disease.

In the acquired hemolytic icterus the anemia is far more intense, and, curiously enough, the corpuscular fragility is not so marked as in the congenital type. In addition, an auto-agglutinative power of the serum is at times observed. The most important forms of the acquired type may simulate (1) cholelithiasis, (2) pernicious anemia with jaundice, (3) chronic infectious cholangitis, (4) splenic anemia or (5) icterus gravis. (The recognition of the acquired types is particularly important, because some of them can be greatly improved if not cured by the persistent administration of iron.)

It is impossible to say where the hemolysis occurs; some insist that it is in the spleen (and report cases cured by splenectomy), others that it is in the blood. At any rate, the important problem as to the primary cause of the condition is certainly at present impossible of solution.

But little attention has been paid to this subject in American literature. It is hoped that Thayer's review in the Johns Hopkins Bulletin will be consulted by those encountering similar cases. The laboratory tests for corpuscular fragility are a trifle tedious, but not at all difficult of execution in hospital, as the writer can testify. René Bine.

Some of us will never cease to stand aghast at the ease with which anxious families are placated with polysyllabic reverberations. This pregnable quality of **SOMETHING** human nature, the awe of the **INTERSTITIAL** known, is seized upon by many a practitioner of many patients and fewer morals,

to smooth over a path which would otherwise be too rough in the going.

The conscientious doctor when asked for a diagnosis where none has been reached, will answer, "I don't know." Simple doctor! How far better are some of the following diagnoses which have been oracled by some of the omniscient: "The trouble in this case," says Dr. X., who has been called in as a consultant, "Is something interstitial and time will tell whether the boy will live or die." This in a case of an obscure continued fever. Picture the orientation of the mother when she found that her boy had "something interstitial!" From her countenance it was easy to see that at last she felt as though she knew "where she was at."

Mr. X. goes to Dr. Y. suffering with anginoid pains. He goes to Dr. Y. because of the latter's large practice. Dr. Y. tells him the trouble is a "painful contraction in the chest." A modern Sydenham come to judgment! Mr. X. has at last found out his disease and is easier in mind, while Dr. Y. is easier in pocket, besides having secured by rhetoric the patient's confidence. It is only after many months of ineffectual treatment that Mr. X. seeks other aid, and after a positive Wassermann followed by specific treatment Mr. X. is relieved of his "painful contraction in the chest."

Mrs. A. is ill with jaundice, vomiting and distension. Dr. B. is the family physician and must be called. He is a good doctor, surely, because all the deceased of that generation have passed away with his assistance. "Dear Dr. B.," asked the young medical student in the family, "what is your diagnosis?" "Ah, my lad," answers the wiseacre, "here we have to do with a gastro-hepatic-intestinal affair." The neophyte, though edified, did not understand the diagnosis and inquired further. "It is this way," said the savant, "the vomiting is gastric, the jaundice hepatic, the distension intestinal." Presto, the problem was solved by this wonderful diagnostic acumen!

Mrs. C. has been under observation by Dr. D. for an extended period, the doctor having diagnosed cholelithiasis. Dr. D. being out of town, Dr. E. is called in during the attack. Let it be understood that Dr. E. is a religion among his patients, and they live secure in the knowledge that instead of going to Heaven they will go to him when they die. "Have I gall stones?" asks Mrs. C. of him. "It may be," is the answer, "but on the other hand you may have biliary colic. I will give you something to liquify the bile." A disease in sooth, "biliary colic," and how wonderful is science these days that can give us drugs to liquify bile!

Unfortunate Mr. F. suddenly has an attack of hemiplegia. Doctors on the scene diagnose cerebral thrombosis and some advise venesection. Anxious family gathered in mahogany drawing-room must first have extended consultation, and above all the dictum of Dr. G. Consultation is free, open and in the presence of the family, and Dr. G. strenu-

ously objects to bleeding, "instead we shall give nitrites," says he. "The blood vessels in the brain are contracted and the nitrites will dilate them." His word carries with the family, for naturally they have not read Leonard Hill's work any more than Dr. G. apparently had done.

All of this and much more that is omitted simply voices a pity,—the pity that the laity naturally cannot be in a position to know more, and a pity that there are among us those who will so deliberately use words to cloak ignorance. "Something interstitial," "gastro-hepatic-intestinal affair," "clarify bile," "painful contraction in the chest," dilating cranial vessels with nitrites,—all these cry out in their absurdity and savor of Dr. Munyon more than any one else. For our own self-respect let us talk truth and common sense to our patients lest our cloak be torn off, and let us wage as relentless a war on the untruths inside the profession as on those without. Fortunately the users of these methods are really few, but unfortunately their influence is frequently great. Were they anything but a minority, we should as a body be truly suffering from "something interstitial." H. I. W.

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Some recent work in France has demonstrated the possibility of obtaining a cutaneous reaction in syphilis that may be of practical diagnostic value equal to that of the accepted cutaneous tests in tuberculosis.

#### A SKIN REACTION IN SYPHILIS.

If the hopes aroused by the favorable results obtained in the preliminary work and by the reasonableness of the procedure prove to have been justified, a simple practical diagnostic method will be available. It will be welcomed by many physicians who, on account of the expense and the difficulties connected with having a Wassermann test or any of its modifications performed cannot utilize this most valuable diagnostic aid in many of their cases.

Observing the frequency with which the Porges "precipito-reaction" was obtained in syphilis, Loeper, Desbouis and Duroeux were led to try to see if intradermic injections of glycocholate of soda in syphilitic subjects would not determine the appearance of characteristic nodules. They were successful a surprising number of times, the reaction consisting of "a lenticular erythema, a small lentil-sized nodule or a small ulceration." The results were confirmed by the Wassermann reaction. One or two drops of a fresh 1-20 or a 1-50 solution were injected intradermically by the usual method. The solutions used were preserved in sealed glass ampoules, protected from the light. In 100 non-luetic subjects the reaction was negative 85 times. In 10 primary syphilitics there were 10 strongly positive reactions. In 56 "secondaries" there were 56 positive reactions (with both dilutions of the solution). With 15 tertiary subjects there were 14 positive reactions. Nine cases of tabes, G. P. and leucoplakia only gave one positive result. An ac-



count of this work appears in the Bulletin de la Soc. Med. des Hopitaux de Paris, Jan., 1911.

Of greater interest was the work reported by Nicolas, Favre, Cl. Gautier and L. Charlet (Bull. et Mem. de la Soc. Med. des Hop. de Paris and the Lyon Medicafe, March, 1910) who made use of fetal heredo-syphilitic liver. This liver substance, rich in treponemes, was sterilized and concentrated as a glycerin extract which they called "syphiline." This syphiline was diluted 1-3 or  $\frac{1}{2}$  with sterile salt solution and introduced into the skin of the subjects by the Pirquet method of scarification. The authors accepted only reactions that were truly nodular and rejected those that were merely erythematous or urticarial. Of nine non-luetic patients only one showed any reaction and this was of "very doubtful nature." Of 29 syphilitics, 13 gave strongly positive reactions, 4 feebly positive reactions and 5, doubtful reactions. The remaining 7 were negative. In 5 tertiary cases there were 5 positive results.

In passing it might be mentioned that the same authors observed at that time and again quite recently that the various skin reactions to tuberculin were positive in a certain number of syphilitics free from tuberculosis.

It would be extremely interesting and perhaps productive of good results, to experiment in this way with various substances that have been successfully used as antigen. The material could be introduced into the skin either by the intradermic injection method or by the Pirquet method of scarification, or possibly by inunction. The writer recently tried the latter means, using syphilitic liver substance in a few cases, without success. It is hardly necessary to observe that the material used ought to be sterile.

We know that a definite specific reaction occurs in tuberculosis after the introduction into the skin of properly prepared tuberculin,—then what could be more reasonable than to expect to obtain a specific reaction in lues by the injecting of prepared syphilitic material (both being diseases due to definite organisms)? The preliminary work has been done, and although the number of cases observed is small, the results reported are encouraging. Its development will be observed with deep interest.

HARRY E. ALDERSON.

The presence of a disease in rats resembling leprosy in many respects, is of more than passing interest. This condition was first

**RAT LEPROSY.** observed in rats by Stefansky, who published his observations in 1903 (Centralblatt f. Bakteriologie, etc., Originale, vol. 33, 1903, p. 481).

As the opportunity of examining large numbers of rodents is limited ordinarily, to campaigns against bubonic plague, it is not possible to determine whether the distribution of the disease in rats is comparable to the areas in which human leprosy is known to exist.

A number of investigators, including some on this coast, have described this condition in rats. The main features which resemble those of human leprosy are glandular enlargement, deep-seated ul-

cerations of the skin, alopecia, subcutaneous infiltration and visceral lesions in advanced cases.

The probable causative agent, a bacillus, strongly resembles Hansen's bacillus morphologically, tinctorially and culturally.

By means of the Bordet-Gengou reaction a distinct relationship between human and rat leprosy has been demonstrated. It is probable that this relation is similar to the relation between human and bovine tuberculosis.

From McCoy's investigations (Public Health Reports, U. S. P. H. and M. H. Service, Nov. 6, 1908) it appears that a large percentage of rats found with the leprosy-like disease come from slaughter-houses and butcher shops. It is possible that further investigation will develop a parasitic line of communication between the rat and human type of leprosy.

If future experimentation does not disprove the relationship, it will afford a valuable means of studying a disease whose investigation up to recently has been chiefly along clinical lines. L. S. S.

In the June number of the Zeitschrift für Tuberkulose for 1911, appears an article by Dr. S. Bernheim of Paris, Président de l'Oeuvre de la Tuberculose Humaine, and by Dr. L. Dieupart of Paris, Médecin-Chef du dispensaire antituberculeux de St-Denis. In this paper are given the histories of seventy-five cases of tuberculosis treated with a new drug, Dioradine, which was put on the market by Dr. Szendeffy of Buda-Pesth. The results achieved are surprisingly encouraging and satisfactory. The paper itself is written in a most convincing and, with the exception of a few remarks, in such an attractively modest way that it is bound to make an impression on every one who reads it. The results which are published, and which not only included the observations of Bernheim and Dieupart, but also those of a number of other physicians who have used the drug, as, for instance, Aba of Buda-Pesth, Hervé of Lamotte-Beuvron, Kaminsky of Paris and others, impressed me so much that I cabled to Buda-Pesth for a sufficient amount of this new drug to begin treatment of thirty cases. As soon as the Dioradine was put on the market, I telegraphed to New York for more to complete the treatment of these cases. The only objection I could find to the new drug was the way in which it was put on the market and in which it was afterwards advertised to the profession.

In his paper Dr. Bernheim makes a strong point of the fact that the medicine would be free for trial to any specialist, and that the only wish expressed by Dr. Szendeffy of Buda-Pesth was that the results of the experiments should be communicated to him. Bernheim compares the way in which Dioradine was put on the market with the introduction of other drugs, as, for instance, Behring's Tulase. He repeats Szendeffy's communications, in which the author says:

"Je suis prêt à mettre à la disposition de tous ceux qui désirent essayer ce moyen de guérison toute la quantité dont ils auront besoin pour les expériences

et cela gratuitement en leur fournissant le mode d'emploi, avec la seule réserve de vouloir bien noter leurs observations. . . . Ma composition, mes chers collègues, n'est point miraculeuse, ni mystérieuse, pas plus qu'une panacée. Elle a peut-être encore besoin d'être perfectionnée. Je ne pourrai même pas promettre son efficacité dans tous les cas: elle ne pourrait régénérer une tuberculose à la troisième période, car rien ne pourra modifier les alvéoles pulmonaires détruites."

Bernheim then continues:

"Ces paroles donnent une haute idée de la probité scientifique du Docteur Szendeffy. Ni formule secrète, ni panacée! Récemment, on lançait à grand fracas un produit contre l'avarie: c'était la panacée qui allait détrôner le mercure. L'expérience est faite: ce produit prôné à grand renfort de réclame est horriblement douloureux et ne guérit pas mieux que la médication habituelle. Il y a quelques années, un grand savant, Behring, avait trouvé sa fameuse tulase qui devait vaincre la tuberculose: c'était un remède miraculeux . . . sur le papier. Mais formule secrète; mais panacée . . . elle fut peu distribuée aux expérimentateurs et certains savants français virent leurs demandes de tulase refusées. La tulase—a vécu."

Certainly a most convincing way of recommending the new drug to the medical profession, in spite of the uncalled for and especially, in regard to the remarks about Salvarsan, most unprofessional slamming of other authorities.

I used the Dioradine in thirty cases, not choosing any advanced cases, but only those in the first and second stages of tuberculosis, so as to give the drug an absolutely fair trial. In all these cases, without exception, the results have been entirely negative. The drug has not done anything which it was supposed to do. It has not increased the appetite, it has not increased the weight, it has not decreased the cough, or sputum, or fever. In the majority of cases, the patients have shown more cough and sputum, and the rest showed no change whatsoever.

I can only wonder at the fact that the results of Bernheim and his colleagues should be so excellent and mine so entirely discouraging. As for comparing the effect of Dioradine in tuberculosis with the effect of Salvarsan in lues, or rather claiming that Dioradine will be a greater blessing to humanity than Salvarsan has proved to be so far, I can only wonder what induced Bernheim to make such a remarkable statement, a statement which must reflect badly on his judgment and sense of fairness.

I feel justified in warning the profession against the use of this new so-called remedy. It is evidently one of the many new drugs which are put on the market in a clever fashion, and which are advertised in a most convincing manner, but which are absolutely negative in their results. This way of advertising a useless drug, and of trying to fool the profession, cannot be too strongly condemned.

MAX ROTHCHILD.

## MEDICAL EDUCATION.

We are in receipt of a communication from Dr. Flavell B. Giffany, President of University Medical College, Kansas City, announcing

### AN INNOVATION.

the reorganization of that institution on a novel basis. The college is to cease giving instruction in the subjects of the first and second year and confine its activities to the professional studies of the third and fourth years. It is further proposed to extend the time a year so that the diploma would represent a five years' course. This innovation is indorsed by the American Association of Medical Colleges and by a committee of the American Medical Association. With proper restrictions there is much to be said in favor of colleges of this order. To the young man entering on the study of medicine the university atmosphere and facilities are most desirable, but the location of many such institutions is often far from the madding crowd where clinics are not and hospitals of the cottage variety. There is no reason why the student should not at the end of two years of quiet and steady absorption in the basic studies pass on to a finishing college in a large city replete with the clinical facilities there possible. We already have in San Francisco a similar working arrangement in the division of the Stanford and University of California courses. With proper provision that the entrants to the higher school had satisfactorily complied with the state and national requirements governing the earlier course of study there is no reason why we should not welcome the appearance of properly equipped institutions of this type. Most commendable is the extension of study to five years. Our present four years' course is indefensible in theory and a failure in practice and the sooner we get in line with the rest of the world the better will it be for our profession and the public.

We are in receipt of a circular from the Council of Chemistry and Pharmacy of the American Medical Association, addressed

**A SIMPLIFIED MATERIA MEDICA.** to the teacher in the medical schools and the members of the State Examining boards. Quoting Dr. Arthur Dean Bevan, it says: "With the overcrowded condition of the medical curriculum it is highly important that the small amount of time which the student has to devote to the study of drug preparations should be largely spent in obtaining a *thorough* knowledge of the more important drugs rather than in the obtaining of a superficial knowledge of all drugs, the majority of which are of little or no value." To this end the Council of Chemistry and Pharmacy have drawn up a list of drugs and their preparations compiled from the following sources:

1. A joint committee of the American Medical Association and that of the United States Pharmacopia.
2. The national confederation of State Examining and Licensing boards.
3. The list of articles of materia medica used by



the University College, London, in examining candidates.

4. A list of articles included in the protocol of the Brussels conference for the verification of pharmacopeial formulas for potent medicaments.

5. A list of titles included in ten or more of the recently published foreign pharmacopeias.

6. The table of materia medica subjects included in the report of the Sub-committee on Pharmacology, Toxicology and Therapeutics of the Committee of One Hundred on a Standard Curriculum for Medical Schools.

This list is submitted for criticism, and considering the sources given above, of whose wisdom it is stated to be a consensus, one would expect it to be well nigh perfect. We were a little alarmed at first sight by noting that there were about seven hundred names in the list. Remembering the oft-repeated statement that twenty would cover all the really valuable drugs and fifty include about everything the majority employ, the simplification seemed nebulous. A further examination showed dupli- and triplication of remedies owing to the method of classification. Eliminating all such we find that the actual list or proposed preparations is 460 in number, and these are as follows:

Mucilage Acaciae	Aqua Anisi	Tinctura Cannabis Indicae	Extractum Glycyrrhizae Purum
Syrupus Acaciae	Oleum Anisi	Extractum Cannabis Indicae	Pulvis Glycyrrhizae Compositus
Acetanilidum	Antimonii et Potassii Tartras	Tinctura Cantharidis	Gossypium
Acetphenetidinum	Vinum Antimonii	Colloodium Cantharidatum	Gossypium Purifacum
Acidum Aceticum	Antipyrina	Ceratum Cantharidis	Oleum Gossypii Seminis
Acidum Aceticum Dilutum	Apomorphinae Hydrochloridum	Emplastrum Cantharidis	Granatum
Acidum Aceticum Glaciale	Argentii Nitras Fusus	Tinctura Capsici	Fluidextractum Grindelliae
Acidum Acetylsalicylicum	Argentii Proteinase	Oleo-resina Capsici	Guaiacolum
Acidum Benzoicum	Tinctura Arnicae	Carbo Ligni	Guaiacolis Carbonas
Acidum Boricum	Arseni Triloxidum	Cardamomum	Guaiacum
Glyceritum Boroglycerini	Liquor Acidi Arsenosi	Tinctura Cardamomi	Tinctura Guaiaci
Unguentum Boricum	Liquor Arseni et Hydrargyri Iodidi	Tinctura Cardamomi Composita	Hexamethylenamina
Acidum Citricum	Liquor Potassii Arsenitis	Oleum Cari	Homatropinae Hydrobromidum
Acidum Diaethylbarbituricum	Asafoetida	Oleum Caryophylli	Hydrargyri Chloridum
Acidum Hydrochloricum	Tincture Asafoetidae	Cera Alba	Corrosivum
Acidum Hydrochloricum Dilutum	Oleo-resina Aspidi	Cera Flava	Hydrargyri Chloridum Mite
Acidum Hydrocyanicum Dilutum	Atropinae Sulphas	Cetaceum	Hydrargyri Iodidum Flavum
Acidum Salicylicum	Aurantii Florum, Aqua	Chloralium Hydratum	Hydrargyri Iodidum Rubrum
Acidum Tannicum	Aurantii Amari Cortex	Chloroformum	Liquor Arseni et Hydrargyri Iodidi
Glyceritum Acidi Tannici	Oleum Aurantii Corticis	Aqua Chloroformi	Hydrargyri Oxidum Flavum
Acidum Tartaricum	Tinctura Aurantii Amari	Spiritus Chloroformi	Unguentum Hydrargyri Oxidi Flavi
Aconitina	Tinctura Aurantii Dulcis	Linimentum Chloroformi	Hydrargyrum
Tinctura Aconiti	Balsamum Peruvianum	Chromii Triloxidum	Emplastrum Hydrargyri
Adeps	Balsamum Tolutanum	Chrysarobinum	Ilydrargyrum cum creta
Adeps Benzoinatus	Tinctura Tolutana	Unguentum Chrysarobini	Massa Hydrargyri
Oleum Adipis	Syrupus Tolutanus	Cinchona	Unguentum Hydrargyri Dilutum
Adeps Lanae	Belladonnae Folia	Tinctura Cinchonae	Hydrargyrum Ammoniatum
Adeps Lanae Hydrosus	Tinctura Belladonnae Foliorum	Tinctura Cinchonae Compositae	Unguentum Hydrargyri Ammoniatum
Aether	Emplastrum Belladonnae	Cinnamomum	Hydrastina
Spiritus Aetheris	Extractum Belladonnae Foliorum	Aqua Cinnamomi	Tinctura Hydrastis
Spiritus Aetheris Compositus	Unguentum Belladonnae	Oleum Cinnamomi	Fluidextractum Hydrastis
Aetheris Nitrosi, Spiritus	Tinctura Benzoini	Cinnamomum Salgonicum	Hydrogenii Dioxidum, Aqua
Aethylis Chloridum	Tinctura Benzoini Compositae	Tinctura Cinnamomi	Tinctura Hyoseyami
Aethymorphinae Hydrochloridum	Benzosulphinidum	Cocainae Hydrochloridum	Iethyol
Alcohol Absolutum	Betanaphthol	Cocculus	Iodoformum
Alcohol Dilutum	Bismuthi Subcarbonas	Codeinae Phosphas	Iodum
Spiritus Frumenti	Bismuthi Subgallas	Codeinae Sulphas	Tinctura Iodi
Spiritus Vini Gallici	Bismuthi Subnitras	Colchicina	Ipecacuanha
Tinctura Aloes	Bismuthi Subsalicylas	Colchici Semen	Tinctura Ipecacuanhae
Extractum Aloes	Cadinum, Oleum	Tinctura Colchicis Seminibus	Pulvis Ipecacuanhae et Opil
Alouinum	Caffeina	Colloodium	Syrupus Ipecacuanhae
Althoea	Caffeina Citrata	Colloodium Flexile	Pulvis Jalapae Compositus
Alumen	Calcii Carbonas Praecipitatus	Extractum Colocynthis	Resina Jalapae
Alumen Exsiccatum	Calcii Chloridum	Extractum Colocynthis Compositus	Tinctura Kino
Aqua Ammoniae	Calcii Hypophosphis	Copaiba	Tinctura Krameriae
Linimentum Ammoniae	Calcii Lactas	Creosotum	Extractum Krameriae
Spiritus Ammoniae Aromaticus	Calcii Phosphas Praecipitatus	Cresol	Syrupus Krameriae
Ammonii Acetas, Liquor	Calcii Sulphas Exsiccatus	Liquor Cresolis Compositus	Florum
Ammonii Bromidum	Tinctura Calumbae	Creta Praeparata	Tinctura Lavandulae Composita
Ammonii Carbonas	Calx	Mistura Cretae	Extractum Leptandrae
Ammonii Chloridum	Linimentum Calcis	Cubeba	Limonis Cortex
Amygdala	Liquor Calcis	Oleo-resina Cubebae	Oleum Limonis
Aqua Amygdalae Amarae	Camphora	Cupri Sulphas	Tinctura Limonis
Oleum Amygdalae Expressum	Aqua Camphorae	Decocta	Linum
Amylis Nitris	Spiritus Camphorae	Diacetylmorphinae Hydrochloridum	Oleum Linl
Amylum	Linimentum Camphorae	Digitalis	Tinctura Lobeliae
Glyceritum Amyli	Fluidextractum Cannabis Indicae	Infusum Digitalis	Lycopodium
		Tinctura Digitalis	Magnesi Carbonas
		Elaterinum	Magnesi Citrat, Liquor
		Elixiria	Magnesi Oxidum
		Elixir Adjuvans	Magnesi Sulphas
		Elixir Aromaticum	Magnesi Sulphas Effervescens
		Epinephrina	Manna
		Ergota	Matricaria
		Fluidextractum Ergotae	Mel Depuratum
		Extractum Ergotae	Mentha Piperita
		Eucalyptol	Oleum Menthae Piperitae
		Oleum Eucalypti	Aqua Menthae Piperitae
		Fel Bovis Purificatum	Spiritus Menthae Piperitae
		Ferri Carbonas Saccharatus	Menthol
		Massa Ferri Carbonatis	Methylis Salicylas
		Pilulae Ferri Carbonatis	Methylthioninae Hydrochloridum
		Ferri Chloridum	Misturae
		Liquor Ferri Chloridi	Mistura Cretac
		Tinctura Ferri Chloridi	Morphina
		Pilulae Ferri Iodidi	Morphinae Hydrochloridum
		Syrupus Ferri Iodidi	Morphinae Sulphas
		Ferri Phosphas Solubilis	Morrhuae Oleum
		Ferri Pyrophosphas Solubilis	Myristica
		Ferri Sulphas	Oleum Myristicae
		Ferri Sulphas Exsiccatus	Myrrha
		Ferri et Ammonii Citras	Tinctura Myrrhae
		Ferrum Reductum	Nux Vomica
		Aqua Foeniculi	Extractum Nucis Vomicae
		Oleum Foeniculi	Tinctura Nucis Vomicae
		Formaldehydi, Liquor	Opium
		Frangula	Opium Pulvis
		Galla	Extractum Opil
		Gaultheriae, Oleum	Tinctura Opil
		Gelatinum	Deodorata
		Gelatinum Glycerinatum	
		Tinctura Gentianae Composita	
		Extractum Gentianae	
		Glandulae Thyroidae Siccac	
		Glycerinum	
		Suppositoria Glycerini	
		Glycerita	
		Glycerilis Nitrat, Spiritus	
		Glycyrrhiza	
		Fluidextractum Glycyrrhizae	





better obstetrical training than is usually possessed by the recent graduate. Among other pertinent statements occurs the following: "The large maternity hospitals of this country receive every year a number of unfortunate women in childbirth, fatally injured by inadequate or unskillful medical attendance, and the infant is usually destroyed with its mother. These tragedies, therefore, must be comparatively frequent throughout the country." It would be difficult to frame a severer, we might say a more terrible, indictment of medical teaching than that statement. Professor Hirst lends the weight of his authority to what most of us who have seen much of medical practice at large know to be too true. Nor under the present conditions of instruction can it be otherwise. With an overcrowded curriculum that has only time to give "a rudimentary drill," and graduating and licensing regulations that demand no practical acquaintance with the act of parturition, the tragedies are inevitable. In other fields of practice the neophyte has time to seek the counsel of his books, the aid of his colleagues, but in obstetrical practice time is more than money—it is life. What likelihood is there of the man who has never attended a labor recognizing an impending crossbirth, a placenta previa or other common complications? Luck may defer these inevitable experiences until experience with the normal has given diagnostic acumen and manipulative skill, but they are just as likely to occur the first time a raw recruit finds himself at the bedside of a country patient far from all professional assistance. It is this fact of the likelihood of the demand for an immediate application of skill, and the deadly peril of delay or failure, that places obstetrics in a different category to other fields of medicine. Moreover, it is a class of practice which at the beginning of our career few of us can escape. Recognizing this, the medical profession in all other countries but ours has insisted on evidence of practical experience in the management of cases prior to graduation. Thirty years ago the English examining boards required personal attendance on not less than twenty accouchments. Other countries had similar requirements, and these have not been lessened but increased so that, as Dr. Hirst says, to-day forty or even fifty cases are demanded. We may not be able immediately to reach this standard, but there must be some approach to it. A medical curriculum that teaches so many things that all have to be rudimentary, that sends out into a confiding world graduates who are frequently unable to handle that most primal of all medical duties, the care of a mother and child, is fundamentally defective, and it is time we woke up to the necessity of putting it right. It will need an extension of the professional course of study, but we should have had that long ago. It may possibly further diminish the number entering the profession, but that would be an unalloyed good. The immediate proposal of the committee of the American Gynecological Society is that six cases shall be attended, under supervision, by each undergraduate. The number is inadequate, but it is a beginning. If we in this state want to free the profession from a responsibility that wilfully continued is not less than a

crime, let us induce our State Board of Medical Examiners to make evidence of such experience a condition of the license to practice.

H. D'ARCY POWER.

## ORIGINAL ARTICLES

### GEOGRAPHIC INFLUENCES IN THE ETIOLOGY OF SKIN DISEASE.\*

By ERNEST D. CHIPMAN, M. D., San Francisco.

It has, of course, long been recognized that certain diseases become more readily acclimatized and thrive better in some parts of the world than others.

The small-spored ringworm, which constitutes 80% of all scalp ringworms in England, is present in only 60% in France, is infrequent in Germany, and gradually disappears as one proceeds eastward. Prurigo, which is a commonplace in Vienna, is a rarity in San Francisco. Likewise favus, so common in Italy, is found in California only exceptionally and as an imported disease. Chancroids, which flourish in Austria and Italy, seem not to occur frequently in France. Cancer is said to be less common in China than elsewhere. Keloid is often and psoriasis seldom observed in negroes. Lupus vulgaris, so often encountered in European clinics, is relatively infrequent in the United States. Leprosy has definite geographic predilections, which are well known. Granuloma coccidioides has been particularly noted in the San Joaquin Valley in this state.

These are a few examples. It would be easy to enumerate more, but these are sufficient to justify the question as to how important a role mere geography plays in the causation of skin disease.

That such factors as climate, soil, season, altitude, etc., having to do with physical geography, and race, habits, varying standards of hygiene, etc., having to do with political geography, may influence disease, no one will question. Certainly a broad geographic inquiry will provide us with a few general points of view. When we consider, however, on the one hand a certain portion of the world, our own state, for example, remembering its peculiar geographic aspects, and on the other hand statistics showing the relative frequency of the more important dermatoses, here and elsewhere, we may arrive at some rather special points of view. We may be able to see between an increased frequency of a certain disease in one place and a lessened frequency in another place some relation more or less attributable to geographic influences.

The course of this paper would naturally lead, then, through two parallel paths, along which we should find in one the salient geographic features of this state, and in the other statistical discrepancies between various places. Whether there be by-paths which connect these straight courses here and there, or whether they run each its separate way, is a matter the settlement of which really constitutes our thesis.

It would be well at the outset to consider certain geographic factors which bear somewhat upon the subject of skin disease.

\* Read at the Forty-first Annual Meeting, State Medical Society, Santa Barbara, April, 1911.

Physically such influences as heat, cold, sunlight, winds, humidity, altitude, etc., are to be thought of, while politically the general status of the people, race, customs or habits of life with respect to diet, dress, hygiene, etc., must be taken into account.

In so far as certain statistics gathered by the writer are concerned, it must be remembered that they deal with San Francisco and its surrounding territory, which represents but one portion of a state which is remarkable for its geographic diversity. While this narrows very materially the scope of this paper, it is to be hoped that the discussion will bring out noteworthy observations from the state at large. In San Francisco the geographic factor of importance is a rather special climate, the influence of which will be referred to presently in connection with the diseases upon which it possibly bears.

With respect to general climatic conditions certain facts are well known. Cold climates favor the development or aggravation of eczematous conditions, certain forms of pruritus, ichthyosis and psoriasis. Heat causes the development of various sweat eruptions such as sudamina, dyshydrosis or pompholyx and hyperhydrosis with its sequelae. Combination of heat and moisture aids superficial parasitic infections, as *tinea versicolor*.

Strong sunlight favors erythematous and eczematous outbreaks and exerts a potent influence in the origin of keratoses, chiefly in individuals past middle age, in whom such spots are often to be considered as pre-cancerous affections.

Winds of all sorts predispose to catarrhal inflammations of the skin. Fogs, which by many laymen are supposed to be good for the complexion, would perhaps be not harmful if constant. The rapid alternation between dryness and moisture is an irritant to sensitive skins. Far worse than the fog-laden winds are the excessively drying north winds, which in some sections and at some seasons blow continuously for days at a time.

The effect of altitude is more indirect. Probably taken by itself its influence does not extend beyond those cases in which the chief etiologic factor is some neurosis which certain altitudes aggravate.

The question of the effect of sea air sometimes arises. Persons who are sent from inland towns to the seashore are subject to so many concomitant changes in general regime, diet, etc., that it is difficult to attribute any change for better or for worse exclusively to the sea air.

The very diversity of the geography of California logically limits the pursuit of our inquiry to one definite locality. Physically the state affords marked contrasts in altitude, temperature, winds, moisture, etc., while politically there are great differences in the mode of living between the urban and rural communities as well as between the various foreign colonies dwelling within the state.

Certain facts applying to the state in general are to be remembered. First, the absence of severe winter weather allows a maximum of out-of-door life. The marked changes in seasons reckoned with in other states are of less consequence here. The population is cosmopolitan. Abject poverty is rarely observed here.

Let us turn now to the diseases most frequently occurring in San Francisco.

About a year ago the writer attempted to classify upon the basis of etiology eleven hundred and odd consecutive cases from the Cooper College clinic. The difficulties of such a classification are, first, the fact that concerning the cause of some skin diseases we know little, and second, that other diseases result from such a variety of causes that it is impossible to place them fairly.

The following are the eleven most common skin diseases according to this compilation:

1. Eczema .....	20	per cent of all cases				
2. Syphilis .....	13	"	"	"	"	"
3. Scabies .....	10	"	"	"	"	"
4. Impetigo Contagiosa .	6	"	"	"	"	"
5. Urticaria .....	6	"	"	"	"	"
6. Dermatitis .....	6	"	"	"	"	"
(a) medicamentosa)						
(b) venenata						
7. Seborrheic Eczema ...	5	"	"	"	"	"
8. Acne Vulgaris .....	3.5	"	"	"	"	"
9. Ringworm .....	3	"	"	"	"	"
10. Psoriasis .....	2.3	"	"	"	"	"
11. Epithelioma .....	2.3	"	"	"	"	"

We have a list of eleven affections which represent over three-fourths of all the cases seen in one clinic in approximately two years' time. Further it will be seen that the first two diseases represent one-third, the first four one-half, the first seven two-thirds of all our cases.

These figures, placed in parallel column with figures gathered by the American Dermatological Association from the larger Eastern cities, afforded some interesting bases of comparison from the geographic standpoint.

First of all, it was found that impetigo contagiosa, psoriasis and syphilis occur with the same frequency in San Francisco and the rest of the country. Scabies showed 10 per cent as against 8 per cent in the East, an interesting fact in connection with the statement of older practitioners that this disease was of rare occurrence in San Francisco prior to the Spanish War.

In respect to some of the other diseases marked variations were noted. Urticaria, for example, was more than twice as frequent a visitor among us as in the average Eastern city—a subject we referred to in a paper before this society one year ago, and in which we supported the view that the flea played a not unimportant etiologic role.

Eczema occurs here with somewhat greater frequency than elsewhere in the United States, the Eastern figures showing 15 as against our 20 per cent. Acne occurs only half as often with us, while its near relative seborrheic eczema appears twice as frequently. These discrepancies allow speculation as to the part which geographic factors may play in bringing about such reversals of ratio.

Considering first eczema as the most frequent skin disease, let us take account of the possible geographic factors which influence its occurrence. As bearing on this phase of the question, heat, cold, moisture, winds and sunlight all may be mentioned. These are conditions which vary in different localities. In general, while thermal heat and artificial



heat are known to produce eczema in some subjects, it is certain that cold has a more potent influence in the cause of the disease. Eczema is not only more frequent but more severe in winter than in summer. To those predisposed by reason of an ichthyotic skin, cold weather is often a determining factor.

This being the case, we should expect to find a larger percentage of eczema in cold climates and particularly in those climates where there is a combination of cold and moisture. Do the available statistics substantiate this expectation?

The statistics of the American Dermatological Association, as mentioned, show an average frequency of 15 per cent. Crocker of London states that 25 per cent of dermatologic cases are eczema. In our San Francisco statistics the percentage is 20. London and San Francisco are both favored with frequent fogs. San Francisco enjoys also a cool climate at all seasons, with brisk trade winds throughout the summer months. These are climatic blessings not found in any of the cities from which the American statistics were taken. It is perhaps fair to infer that the very elements which make San Francisco so pleasant an abiding place contribute somewhat to the increased ratio of eczemas. It will be interesting to learn if the cities in the interior and those to the north and south show a corresponding increase over the eastern portions of the United States.

The possible explanation for the occurrence of relatively twice as much seborrheic eczema and only half as much acne is in conformity with the explanation of the increased proportion of eczema.

Underlying both acne and seborrheic eczema is always the same primary condition of seborrhea. Seborrheic eczema is a dermatitis engrafted upon a seborrhea, and brought about by the same general causes as ordinary eczema, while acne is a retention of the products of seborrhea plus a secondary infection. Throughout California people spend a much greater portion of their time out of doors than in perhaps any other section of the country. They are consequently exposed more to those climatic influences such as wind, moisture, etc., than those whose lives are spent more indoors. This same argument holds true with respect to the larger percentage of eczema in England, for the Britisher is notoriously given to an out-of-door life.

But this very manner of life which possibly predisposes to superficial catarrh of the skin at the same time makes for general well being. The same set of conditions which cause an increase of eczema may very well help explain the diminution of acne.

Whether the special climatic conditions and habits of life influence various general conditions is a question which I would very much like to hear discussed. It has often seemed to me that various gouty manifestations are more in evidence in California than in the East. This, if true, would account in some degree for the increased percentage of eczema. Anemia, chlorosis and tuberculosis have, on the other hand, seemed to me less frequent here than on the Atlantic Coast. If this be so, it would help to explain the smaller percentage of acne.

Another factor possibly to be reckoned with is the comparative absence of poverty in California. This indirectly may influence the statistics by diminishing the frequency of those underlying causes of acne just mentioned. The same freedom from great poverty might be adduced as an element in the increased occurrence of the gouty diathesis.

The possible objection that an unlimited diet works for the production of acne as well as eczema is a valid one or not according to the point of view. My personal opinion is that diet has much to do with eczema and little with acne.

An important consideration in connection with skin disease is the use of alcohol. California is a wine-producing state, and it is possible that alcohol is used somewhat more freely here than in some sections of the country. Alcohol certainly predisposes to catarrhal inflammation of the skin, also to gout. It has no such direct connection with acne, besides which acne is a disease of adolescence and the youthful are not so commonly addicted to the cup that cheers.

It may be inquired if, along with the increase in eczema, there is a corresponding excess of psoriasis—to which the answer is that in our series the rate is precisely that for the rest of the country. And this may suggest the question, If alcohol increases eczema, why not psoriasis? Again it depends upon one's point of view. In my observation, risking the accusation of heresy, alcohol does not begin to assume the importance in psoriasis, save in the actively inflammatory cases, that it does in eczema.

Epithelioma showed a percentage of 2.3 in our statistics, as against 1.2 in those of the East. In other words, it is practically twice as common with us. Here is a disease in which geographic variations have many times been noted.

Certain well-known facts along this line will bear repeating. To quote Adami, there has been a greater incidence of the disease, more particularly in the low-lying localities, estuaries and the borders of sluggish streams. In San Francisco the relative number of deaths from cancer increased seven times in thirty-two years, from 16.5 per 100,000 in 1866 to 103.6 in 1898. In Boston the rate trebled between 1863 and 1887. In New York state, according to Roswell Park, there were 2363 deaths from cancer in 1887; eleven years later there were 4456. If we consider these geographic findings we must be influenced somewhat toward the theory of parasitism in cancer.

The distribution of irritating plants and parasites is a matter which shows geographic variations. In California the poison oak is a frequent cause of dermatitis venenata, closely corresponding to the poison ivy of other sections. One sees more cases of this form of dermatitis in California than elsewhere, because on the one hand of the very common occurrence of the plant and possibly the out-of-door habit of Californians.

Among parasites the *cimex lectularius* or bedbug is relatively uncommon, while the *pulex irritans* or flea is most numerous. Both of these parasites influence the occurrence of hives.

The conclusions to be drawn from the facts at our

disposal are that geographic considerations have some bearing on the occurrence of skin disease. Not that geographic considerations independently induce skin disease, but that they exert a definite though indirect influence on its frequency. So much so that any notable deviation from the average frequency should call for special search for etiologic possibilities.

The diseases which are apparently affected by geographic factors in our statistics are acne, eczema, dermatitis venenata, seborrheic eczema and urticaria. The special influences which seem responsible for the variation are manner of life, climate, plants and parasites, each one of which is characteristic of California, either in kind or in degree.

#### Discussion.

Dr. Culver: Dr. Chipman spoke of the fact that epithelioma was more prevalent along the estuaries and in the interior than along the coast. That has been true in the cases we have seen. I was much interested in looking up localities in our own case records, and the great majority of the patients came from the interior. We also have a habit of making note of the different articles of food used by patients coming for treatment of skin diseases, and one product often used by these people is milk. We find many of those affected are great butter, milk, cream and cheese eaters. One man had an epitheliomatosis covering not only the whole side of his face and scattered over his neck, but also had senile patches covering the backs of his hands. He had been in the habit of going from his work and drinking from a quart to two quarts of milk daily. This is true of a great many of these cases. They are just the ones not suitable for surgical operation alone because of the seborrheic keratoses, which are more extensive than the epitheliomatous degeneration. Undoubtedly the geographic distribution has something to do with the seborrheic conditions.

Dr. Albert Soiland, L. A., discussing: Dr. Chipman has gone into the distribution of these diseases very carefully. Along the lines suggested by Dr. Culver, I believe he is quite right about epithelioma being more prevalent among ranchers or inland dwellers in this country. In looking over my cases I find epithelioma more prevalent among farmers than men following the sea. While the latter frequently develop a keratosis of the skin, it is rarely of the epitheliomatous variety. It is true, as stated by Dr. Chipman, that in Europe lupus is more prevalent than in America. It is interesting to note that it is the northern races alone that suffer. Dr. Forchhammer of the Finsen Institute attributes this to the effect of the sudden changes of wind and weather of both winter and summer upon the naturally thin and fair skin of the men of the north.

Dr. Stanley Stillman, San Francisco: With regard to the frequency of scabies I may say that when I had charge of the skin clinic at the Cooper Medical College it was very rare, previous to 1890, to see a case. Sometimes a whole semester would go by without a single case presenting itself. Whether the Spanish War has had anything to do with its frequency in the last years or not, I cannot say. So far as epithelioma is concerned, I agree with the observations made with regard to the geographic influences upon the disease. Going back a long while in my observations, I have noted that a large proportion of the cases coming to the clinic and hospitals came from the valleys along the foothills of the Sierras.

Dr. Harry E. Alderson, San Francisco: Dr. Chipman's paper is exceedingly interesting and of particular value, in that it represents pioneer work on this subject as applied to this part of the country. I would like to ask Dr. Chipman what he thinks of the

following possible explanation of the large percentage of epithelioma cases coming from the interior. Cooper College clinic is a widely known institution, and, as large numbers of people in the interior of the state presenting serious conditions naturally come to San Francisco for professional advice, consequently many of them seek the Cooper clinic for treatment. As the "low-lying lands and the valleys" are more thickly populated than the high lands, necessarily a large percentage of those coming to San Francisco must come from the former places.

Dr. T. C. Edwards, Salinas: I enjoyed Dr. Chipman's paper very much, and will say that scabies was almost unknown in Salinas when I first went there, but it is very much more common now. Impetigo contagiosa is very prevalent also with us now, if the condition which I have seen recently down there is correctly diagnosed.

Dr. E. D. Chipman, San Francisco: In answer to Dr. Soiland's question as to why the same influences which make for the occurrence of epithelioma do not cause lupus, it must be remembered that lupus is a disease of childhood or at least one which usually begins in the first decade of life, while epithelioma is a disease of advanced age. While both may live in the same climate and be subject to the same vagaries of weather, etc., the adult is more predisposed to epithelioma by reason of a senile skin. Concerning impetigo—as the name implies it comes on with a rush, developing from postule one day into a large, sharply defined crusted patch the next day. On the palm of the hand the appearance may be modified by the thickness of the epidermis, while its occurrence in very young children is another modifying factor, by reason of their more tender skin, which must be taken into account. The differential diagnosis is to be made between impetigo contagiosa and crusted eczema. The latter is not so sharply defined, itches, will not allow so easily the removal of crusts and does not show the characteristic glistening surface when the crusts are detached. As to why there is such a large percentage of cutaneous epithelioma at the Cooper College clinic, I must say I do not know. It probably is true that many come in from the interior of the state for diagnosis. In any large dispensary there is a high percentage of floating cases, many of whom present themselves merely for diagnosis with no thought of treatment.

#### THE TOXEMIAS OF PREGNANCY.\*

By LEROY H. BRIGGS, M. D., Oakland.

The toxemias of pregnancy are of absorbing interest, not only to the obstetrician, but even more so to the internist, the ophthalmologist, and the pathologist. Our present-day knowledge of the subject has been gained chiefly from the results of the research worker, interpreted and correlated by the clinician. While many problems still await solution, the advances made within the past decade have been great, and the following paper will attempt a brief survey of some of them.

By the toxemia of pregnancy is meant the morbid conditions arising during gestation, manifested in varying degrees from the common morning vomiting of the majority of gravida to the severe and often fatal pernicious vomiting, acute yellow atrophy and eclampsia. Many hold that the last should not be classed with the others but should be put separately, yet an evidence of toxemia it surely is. Whether or not they are all stages of one and the same disease is a question still to be settled.

\* Read at a meeting of the Alameda County Medical Society, August 22, 1911.



A very rapid review of a few of the principal workers in the field with some of their discoveries and conclusions may be of interest. The similarity between eclampsia and uremia was noticed shortly after the publications of Richard Bright on nephritis in 1827, and for a time the two were thought to be the same process. Rayer in 1840 showed that the convulsions were preceded by albuminuria. Von Leyden in 1886 described the characteristic "kidney of pregnancy"—a kidney in which the changes are not inflammatory but rather degenerative in nature, there being a fatty infiltration of the renal cells. Previous to this it was thought that the pregnant woman was unduly susceptible to nephritis.

Von Frerichs in his monograph "Diseases of the Liver," published in 1860, emphasized the fact that a large proportion of the then reported cases of acute yellow atrophy of the liver had occurred in pregnant women, and presented the clinical and pathological pictures of acute malignant jaundice, acute yellow atrophy, and eclampsia, so clearly that attention was at once focused on the liver as the possible common seat of trouble. Changes in the liver in apparently normal pregnancies have been noticed by many observers, although credit for priority is generally given to Tarnier. Bouchard set forth views that the morbid processes occurring in pregnancy were auto-toxic in nature and in large part due to the inability of the liver to remove toxic bodies of various sources from the circulation. One of his pupils, St. Blaise, in 1898, presented strong arguments to show that the milder forms of toxemia were but forerunners of eclampsia and were due to the failure of the liver to functionate properly, and drew a striking analogy between them and the well-recognized syndrome of liver insufficiency.

Sporadic observers throughout the '90s had begun to point out the urinary abnormalities found in toxemia, such as organic and amino acids, diminished urea and increased ammonia, but it was not until 1903 and '04 that general attention was called to this point and the present-day theories advanced. In 1903 Stone, and in 1904 Ewing, presented cases and drew conclusions to the effect that the persistent vomiting, acute yellow atrophy, and eclampsia were the clinical manifestations of metabolic errors resulting from hepatic insufficiency, and that certain changes of great diagnostic moment were to be found in the nitrogenous bodies of the urine. Edgar and Williams have accepted their views, the latter, however, holding that eclampsia is due to a different form of toxemia and that the liver lesions present are secondary.

Just what toxin or toxins are responsible for initiating the liver changes in pregnancy is at present unknown. At varying times and by different observers the role of forming them has been assigned to the gastro-intestinal tract, the thyroid, the ovary, the fetus and the liver itself, but to go further into the discussion would be unprofitable here. All we can safely say now is that there are toxins in the circulating blood, elaborated during the early months of gestation, which have a selective and a destructive action upon the hepatic cells, thereby causing errors in metabolism of greater or less severity and setting up a vicious circle.

Certain predisposing and accessory causes may be noted, such as previous attacks of toxemia, particularly if severe enough to cause structural changes in the liver. Likewise a hereditary or acquired tendency to hepatic insufficiency—Charcot having stated years ago that a liver functionally below par was very apt to be inherited. A highly nitrogenous diet, by putting a strain on the detoxifying action of the liver, may be the straw that throws the balance toward morbidity. Frankly poisonous substances which have an especial affinity for the liver, such as chloroform, arsenic, phosphorous, and alcohol in quantity, will most certainly aggravate a condition already not of the best.

Morphological changes are chiefly found in the liver, and indeed so constantly that Ewing states that he has never yet failed to discover lesions in that organ in cases dying of pernicious vomiting. The fundamental lesion is a fatty and granular degeneration, with later necrosis, of the hepatic cells, usually of greatest intensity in the inner zone around the central vein, although isolated patches of cells throughout the lobule may be taken. From a slight fatty infiltration in the mild cases to the most pronounced necroses of acute yellow atrophy, every grade may be seen, the degree of cell destruction corresponding as a rule to the clinical severity of the case. In eclampsia there are certain differences in the pathological histology according to Jurgans, Williams and others. Cell necrosis is most marked in the peripheral zone of the lobule, but is held to be a secondary change depending upon thromboses of the inter-lobular vessels and hemorrhages in and about the portal spaces. This different morphological picture gives to Williams a strong argument that eclampsia is an entirely different disease from the toxemias marked by persistent vomiting. It is believed by many that the major portion of these liver changes are really an example of self-digestion, the original toxic agent destroying the life of the cell without inhibiting the proteolytic ferments it contains. Autolysis then occurs with liberation of lucin, tyrosin and other poisonous substances. The liver as a whole may be swollen and tender at the onset, but if the process continue a reduction in size follows. In these cases it is flabby with a wrinkled capsule, greenish-yellow externally, and on section from yellowish-brown to red in color.

The so-called kidney of pregnancy of Von Leyden is a common if not constant accompaniment of the pregnant state and cannot be considered as strictly pathological. Consisting as it does of a fatty infiltration tending to disappear after delivery, it may form the basis of a later acute parenchymatous nephritis set up by the toxins resulting from the liver insufficiency. The consensus of opinion seems to be that the kidney changes, aside from the fatty infiltration, are not primary but secondary. How much of the manifestations of eclampsia are due to renal and how much to hepatic failure is not yet known.

There may be a varying degree of parenchymatous degeneration of the splenic tissue, and it is to this that some would ascribe the anemias and occasional leukaemias following. Great variations

in the histology of the thyroid and para-thyroid glands have been reported but no constant changes. Some maintain that these glands are the organs greatest at fault from their supposed failure to remove from the blood certain toxic products of the fetal metabolism. Ewing reports a fatal case where one para-thyroid gland was greatly swollen and the individual cells very large. In the nervous system a polyneuritis may occur, and of great diagnostic importance is the inflammation of the optic nerve and retina. The blood in severe cases may show the changes seen in sepsis: a destruction of the erythrocytes and an increase in the leucocytes. Thromboses, emboli, and hemorrhages occur, especially in the liver in cases of advanced cell neurosis, and in the smaller cerebral vessels in eclampsia. A hemorrhagic diathesis may be present, evidenced by petechiae. Arterial tension is greatly increased during and previous to eclampsia.

Regarding the metabolic disturbances ensuing: The liver is the chief protector of the body tissues against toxins from any source. Damage this function to any extent and a grave toxemia will result. From the portal circulation come the products of protein digestion and decomposition, normally to be synthetized and oxidized into urea and other harmless combinations. When this power is lessened by liver destruction they pass unchanged into the circulation, and to them are added also the bodies resulting from the disintegration of the damaged liver cells. Chief among these may be mentioned the salts of ammonium, as the carbamate and lactate; amino acids, as leucin, tyrosin, etc. The phenomenon is similar, only of course to a lesser degree, to that seen after an Eck fistula.

From this perverted metabolism we get our urinary changes on which so much stress has been laid within the last few years as diagnostic and prognostic measures. Normally the nitrogen eliminated as urea and the nitrogen eliminated as ammonium salts bear a fairly constant ratio to the total nitrogen output. The urea nitrogen, according to the figures of Folin, is about 87.5%, and the ammonia nitrogen about 4.3% of the whole. The amount of urea excreted in the twenty-four hours varies greatly according to the nitrogenous content of the food and other factors. In round numbers on an average diet it may be put at 30 grams. The ammonia under similar conditions averages 0.7 gram, with extremes placed at 0.3 to 1.2 gram. The commonest causes for a pathological increase of the ammonia are acidosis and liver insufficiency. In the former the increase is to a certain extent protective in that there is an attempt made to neutralize the acids formed, and, other things being equal, the quantity excreted may be taken as a rough measure of the degree of acidosis. In liver insufficiency, on the other hand, the increase occurs from a failure of that organ to properly synthetize urea. Unfortunately for diagnosis and prognosis, in the late stages of some severe and fatal cases the normal nitrogen partition is seen. Why this happens is as yet an unsolved problem.

From a practical standpoint Williams was probably the first to make use of these facts. He divided his cases of vomiting of pregnancy into

three classes: reflex, neurotic, and toxemic, in the last alone finding the associated urinary changes indicative of a toxemia of organic origin. He set up lines—to some rather rigid—for the interpretation of the ammonia coefficient, stating that when it reached 10% the diagnosis of toxemic vomiting should be made and pregnancy immediately terminated.

In this work the most importance has been attached to the ammonia output. Other abnormalities are present but seem to be inconstant and reports concerning them conflict. Indican and the acetone bodies may be present; leucin and tyrosin likewise, although as regards the last two the technical difficulties involved in their isolation and positive identification are exceedingly great. An increase in the amino or undetermined nitrogen, normally about 5% of the total, was found by Ewing to be of great significance. Albumin and casts may or may not occur, and indeed the gravest degrees of toxemia and pernicious vomiting may be present without the urine showing albumin. In and preceding eclampsia we usually have the urinary picture of acute parenchymatous nephritis, albumin with varieties of casts, from more or less advanced processes in the pregnancy kidney, but here again this may fail, for in exceptional cases convulsions may develop where the kidneys show no lesion and albumin is absent.

In a recent paper Underhill takes exception to this generally accepted theory that these changes in the urinary nitrogen are due to defective desamidation by a damaged liver, and instead holds that they are simply the changes of inanition from the prolonged vomiting. This view is combated by Ewing, who argues that it has been proven and is an established fundamental principle of experimental pathology that urinary changes such as these are dependent upon hepatic lesions.

It is without the scope of a short résumé such as this to go into detail regarding the classification, symptomatology, and diagnosis of the various types of the toxemias suffered by the pregnant woman. Generally speaking they may be divided into acute and sub-acute. Characteristic of the former, which corresponds closely to the acute yellow atrophy of the text-books, is the suddenness of its onset and the fatality of its termination. In fulminant forms death has occurred within twenty-four hours, although this is unusual. Headache is a common initial symptom, followed by mental confusion and excitement grading into delirium which may be of the wildest kind. This period of cerebral activity is superseded as a rule by the opposite condition, mental hebetude, coma and death. Vomiting is persistent. Jaundice may or may not be present, and the state of the urine is inconstant.

In the commoner and sub-acute types the picture is not so severe nor the prognosis so bad. Pernicious vomiting and eclampsia will both be considered here although they may be separate conditions. Regarding vomiting, there appears to be a growing tendency to view even the most benign forms as evidences of circulating toxins. The subsidence of the symptoms in the majority of cases is probably due



to a compensatory hypertrophy of detoxifying organs. In those going on to persistent and pernicious vomiting we may assume that this hypertrophy does not occur—it being understood that we are dealing not with the reflex and neurotic cases but with those dependent on serious errors of metabolism. It is here that modern methods afford us the greatest aid—for diagnosis, prognosis, and as an indication for treatment.

The proper chemical examination of the urine, not so much for albumin and casts as for evidences of diminished functioning power of the liver, is essential. The ammonia output for twenty-four hours is of the greatest importance, the technic for its estimation not being formidable, necessitating only a working knowledge of volumetric analysis and a not-extensive apparatus. The total nitrogen is desirable, as is also the determination of the amino acids, but technical difficulties may stand in the way of these for the average worker. In the interpretation of these findings due consideration must, of course, be had for the quantity and quality of the food intake. Williams' rather arbitrary rulings regarding the termination of pregnancy when the ammonia coefficient reaches 10% have already been noted and their discussion will be left for others.

The use of the ophthalmoscope as a matter of routine cannot be too strongly urged, in some cases an absolute diagnosis being possible from the appearance of the eye-grounds alone. The picture seen is a neuro-retinitis with hemorrhages and lymph extravasations. In the earlier stages nothing subjective may be noticed except perhaps a slight diminution in visual acuity. These retinal changes are not dependent upon albuminuria, a number of cases having been reported where the urine was clear in that respect, but are a part of the general toxemic condition.

Of eclampsia the phenomena of the attack are unfortunately familiar to you all, and it is on the symptoms of the pre-eclamptic stage that stress should be laid. Little definite is known of the exact nature of the toxins responsible for the condition, and as has been stated opinion is divided into the two camps—one holding it to be a separate disease, and the other that it is but a different phase of a common toxemia. There is strong evidence to lead us to believe that the seizure occurs only after a long preparatory stage of the organism for it by metabolic and structural disturbances. In the majority of cases it is preceded by headaches, edema, heightened blood pressure, and more or less marked urinary changes, a syndrome highly suggestive of renal insufficiency. Yet it must be again emphasized that eclampsia does not always follow kidney changes and albuminuria, and that convulsions may occur with albumin absent. The probabilities are that the nephritis, while to a great extent the immediate causative agent, is secondary to factors further back.

The urine shows albumin and casts much more frequently than in vomiting. The urea is low, while the ammonia and the undetermined nitrogen are high, showing here again defective liver action. Just before the seizure there may be suppression.

The ophthalmoscope may reveal the same retinal abnormalities as in toxemia proper, and long before the convulsion. The blood pressure determination—within the reach of all—is of striking significance. In the pre-eclamptic stage there is a gradually increasing rise which may give the first clue to the impending catastrophe. It is to be remembered of course that a slight increase in tension, from 5 to 10 mm. of mercury, is a constant accompaniment of the pregnant state. During the convulsion there is hypertension to a tremendous degree, equaled only in uremia, cases being reported where it reached 300 mm. and over. It is to be most strongly advised that blood pressure estimations, in addition to eye-ground examinations, should be as much a matter of course during the later months of gestation as is the present-day hasty examination for albumin.

The prognosis of pernicious vomiting and eclampsia, while not as uniformly bad as that of acute toxemia, is nevertheless always grave. The termination of pregnancy does not always relieve the situation of danger, since the anesthetic, particularly if that be chloroform, together with the products of uterine involution, give an added burden of toxins to be disposed of.

The treatment of these conditions is to be discussed by others and only a few words are necessary here. Very great importance attaches to prophylactic measures—and this necessitates knowing as far as possible the functionary capabilities of the liver. So far the only practical test of liver capacity is the alimentary levulosuria of Strauss, and this can hardly be made of general use. Toxemia having once set in, its earliest diagnosis is imperative and every aid should be sought to achieve this. Laboratory methods—and the term is used broadly to include blood pressure and ophthalmoscope examinations—are far from infallible, yet this is no reason for their neglect. No iron-clad rules can be made and each case must be considered separately and from all sides.

In conclusion it may be pointed out:

(1) That the toxemias of the pregnant woman, according to the modern conception, are dependent upon hepatic lesions, initiated by toxins whose origin and nature are at present unknown.

(2) That the exact relation of eclampsia to this is not settled, but undoubtedly renal changes play a part in its causation.

(3) That during pregnancy, investigations into the components of the urinary nitrogen, and especially the ammonia, should be much more generally carried out than they are at present.

(4) That freedom of the urine from albumin and casts is by no means a safe criterion for judging the absence of a toxemic state.

(5) That the frequent examination of the eye-grounds and the estimation of the blood pressure of the pregnant woman should invariably be a matter of routine.

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## SOME POINTS TO BE CONSIDERED IN FEEDING INFANTS.\*

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 From the Children's Clinic of Cooper Medical College.

(Continued from page 421, October issue.)

In the beginning of this work it was overlooked that the infant is a growing organism laying up immense stores of albumin and of fat but this fact was soon appreciated. A proteid minimum was determined, that is the least amount of proteid that it seemed the growing infant could do with and thrive upon which is about 1 g. per pound per day. If this minimum be not observed, the child's vital processes will be interfered with and it will fail. It was further shown that the amount of albumin that a child could best utilize and thrive upon was more than this, in reality about  $1\frac{1}{4}$  ounces per pound per day, which amount is called the proteid optimum. The maximum beyond which we must not go is  $1\frac{1}{2}$  ounces.

It is very easy to express the albumin need of the child, because an ounce of milk contains about one gram of proteid and so instead of putting down a gram or a gram and a fourth per pound per day, we can say that the need of a child is one, to one and a quarter ounces of milk per pound per day.

The way in which some of our percentage formulas violate the rules laid down by the physiological school of infant feeders can best be illustrated by determining the caloric value of some of the formulas that use the upper third milk. One will find that there is a marked disproportion between the amount of albumin ingested and the caloric value of the food.

One formula in a widely used and justly esteemed text book calls for milk sugar 1 ounce; lime water 1 ounce; 5 ounces of 10% milk equaling fat 2.50, sugar 6.50, proteid 1.25; water q. s. 20 ounces, when worked out this gives a caloric value sufficient for the needs of an eight-pound child but the albumin contained in the milk is sufficient for the needs only of a four-pound child.

The disproportion in a second series of formulas where the fat proteid ratio is 2 to 1 is not so great.

Here the formula calls for milk sugar 1 ounce; lime water 1 ounce; 8 ounces of 7% milk equaling fat 2.80, sugar 6.50, proteid 1.40, water q. s. 20

ounces. This 20 ounces has caloric value sufficient for about 8 pounds of baby while the formula calls for 8 ounces of milk which is the proteid minimum of an eight-pound infant. Not until we examine the series of simple dilutions do we reach a point where the proteid needs of the child are fully met by the formulae. Such a formulae requires milk sugar 1 ounce; lime water 1 ounce; whole milk 10 ounces, equaling fat 2.00; sugar 7.00; proteids 1.75. The caloric supply would be sufficient for an eight-pound baby and the ten ounces of milk in this mixture supplies very close to the proteid optimum. It can readily be calculated that the caloric value of these top milk mixtures differs slightly from the caloric value of whole milk, that the energy requirements of the child are fairly well met by them but that none of the top milk mixtures with their excessive dilutions are the proteid needs of the child sufficiently cared for. This will explain why the babies fed on top milk are so often anemic, and flabby of muscle.

Of late the writer has adopted a rough method of determining an approximate caloric value for the mixtures he uses, which although not quite accurate, is sufficiently so for practical purposes. An ounce of 4% fat milk, as supplied by most certified dairies, may be assumed to equal 20 calories. The top half of a quart bottle of the same milk taken under the ordinary method may be assumed to have a caloric value of 30 to the ounce and the caloric equivalent of each ounce of the top 1-3 may be reckoned at 40 calories. One ounce of sugar contains 120 calories. One ounce of unsweetened condensed milk of a standard brand 60 calories to the ounce. These constants make the determination of the approximate caloric value of mixtures very easy, multiply the constant by the number of ounces of the milk in the day's feeding and add in the number of calories provided by the sugar.

Holt has recently provided a much more accurate plan based on the same principles, which has the virtue of simplicity and practicality. He proposes the use of a definite proportion of a quart bottle of milk. On the assumption that we are dealing with 4% whole milk, he finds that the residual milk after removing eight ounces equals 1% fat, after removing 4 ounces, 2%; after the removal of 2 ounces, 3%; whole milk is 4%; the upper 24 ounces is 5%; the upper 20 ounces is 6% and the upper 16 ounces is 7%. By appropriate dilutions he can make very wide variations in the proportion of fat to protein. He has published a pocket card which contains 15 formulae, in which fat can be varied from .05% up to 3.9% and the proteid .175 to 2.60. Such a card has many advantages and it is to be hoped that it will be very widely used, and he shows that for each increase of 1% in fat, each ounce of milk gains  $2\frac{1}{2}$  calories; 4% equals 20 calories per ounce; 5% 22.5, 6% 25, and so on.

In the practical application of feeding, dilutions of whole or slightly concentrated milk are certainly most satisfactory. In both clinic and private practice very good results have followed their use. The child is weighed and if at a normal age weight, is allowed one ounce of whole milk per day for each pound of its weight. If very wasted his ideal age

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weight is calculated by adding to the birth weight one-half an ounce for each week of life less one, and while he is begun on a mixture supplying sufficient calories for his actual weight, the attempt is made to increase his food concentration until he is getting enough calories to supply his ideal weight. This amount of milk is diluted except in the earlier weeks with a weak solution of dextrine prepared by baking wholewheat flour. To begin with the proportion of milk in the mixture is usually made a little more than  $1/3$  and sufficient sugar is added to bring the proportion of carbohydrates up to between 5 and 6%. To illustrate, a 6 weeks' old baby weighing let us say nine pounds is to be dealt with, three things must first be determined, the amount to be given at a feeding, the intervals between feedings, and the number of ounces of milk to be put into the 24-hour mixture.

The amount to be given at a feeding is not constant for babies of the same age, and will depend on individual peculiarities. Among other things a tall child will always take more food at one time than a shorter child of the same age and weight. Ordinarily the intervals between feedings should never be shorter than 3 hours. It has to be remembered, however, that the more dilute mixtures such as skimmed milk and whey leave the stomach more promptly than the more concentrated foods or than meals high in fat, so that when we feed whey, skimmed milk or dilutions of condensed milk, a shorter interval is permissible. As already stated, the amount of milk in the mixture should be to begin with 1 ounce per day for each pound of the infant's weight so that for a 9-pound baby we should use 9 ounces of milk in the 24-hour feeding. Now if we were giving, as we probably would be, 4 ounces of food every 3 hours from 6 a. m. to 9 p. m. and the same amount once during the night, that is 7 feedings in 24 hours, we should have to put our 9 ounces of milk into a 28-ounce mixture so the resulting dilution would be a little less than one-third. As a dilutant we would choose a decoction made by adding a dessertspoonful of dextrinized flour to a pint of water and boiling in a double boiler for an hour. This dessertspoonful of flour equals  $1/4$  of an ounce.) We would then add  $3/4$  of an ounce of sugar, it makes very little difference whether this be milk sugar, malt sugar, or cane sugar, some children do better on one and some on the other. When constipation is to be combated, malt sugar is indicated and an inexpensive convenient form of this is to be found in one of the malted milks or in Mellin's Food. The various malt soups and malt decoctions are much used but in our experience, although except where there is extreme wasting, they are not better and are much less convenient. We have added then an ounce of carbohydrate to the milk dilution. If sugar is well tolerated, another  $1/2$ -ounce of sugar may be added but it is important not to increase sugar concentration too rapidly. This mixture provides only about 300 calories, which is roughly 100 calories less than this child needs and it provides only 9 ounces of milk which contains the very least amount of albumin commensurate with the child's health; so it is obvious that both the albumin and the energy-pro-

viding elements must very soon be increased. Assuming that the child digests its milk well, this increase is made within a few days and by daily increments of  $1/2$  an ounce each, the amount of milk is brought up to 12 ounces which is 1 1-3 ounces per pound per day, a trifle more than the proteid optimum. The 3 ounces of milk provide a little less than 60 of the additional 100 calories needed and these can be made up by adding the additional  $1/2$ -ounce of sugar spoken of before. Should the child show an idiosyncrasy to casein or to sugar, it is a very simple matter to keep either one of these principles at the minimum and increase the fat. In practice we do this by utilizing a slightly concentrated milk. With a Chapin dipper we take  $4 1/2\%$  milk (the top 26 ounces) from the quart bottle and use this in the formula instead of using whole milk. If this slight increase in the fat is well tolerated, we can concentrate still further, using 5% or 6% milk (to be had by dipping off 24 ounces or 20 ounces) rarely the upper 16 ounces, 7% milk, is used. Our experience is that a higher concentration than this is never well borne by any baby. We also find that where we use these top milks we must rigidly observe our caloric values based on ideal weight or else we get disturbances of digestion, especially constipation. Proceeding on this plan, we endeavor to maintain a gain in the child's weight of not less than 5 ounces a week and not more than 7 or 8. One of the most striking clinical facts to be observed is that when a child gains excessively, say for instance 10 to 12 ounces a week, through more than one or two weeks that he is on the verge of catastrophe and when an exultant nurse rings up to say that her baby has gained a pound in the last week we are certain, that within a very short time, we shall be summoned to treat an acute disturbance in the child. But to return to the method, it is our endeavor to increase the milk so that it is about one-half the mixture by the end of the fourth and two-thirds at near the eighth month. Great stress must be laid upon the fact that at no age does a child need more than 32 ounces of milk. As a matter of fact, when a child is taking from 24 to 26 ounces it is usually time to augment his feeding by cereal porridges, fruit sauces, junkets, custards, and other easily digested foods.

The outline planned is one meant only for normal children who have begun their feeding after the expiration of their first month at the mother's breast. When it is necessary to begin substitute feeding earlier than this, whey and cream mixtures are usually better borne than milk dilutions. The caloric needs of a child, and its albumin requisites can thus be met by a mixture more easily digestible than the routine milk dilution is. Such a mixture too provides a ready and simple food for children with digestive disturbance or those who for one reason or another do not do well on simple dilutions. Whey is readily prepared by the mother or nurse from milk curdled with lab ferment as found in essence of pepsin or in the commercial junket tablet. When we add sugar to whey mixtures, we must remember that all the sugar and most of the salts of the milk go over with the whey; also that the albumin content of whey is about a third that of whole milk,

so that in making such a mixture for each ounce of milk called for in a milk formula, three of whey must be used in order to meet the albumin requisite of the child. For instance, a 6-pound child on whey alone would have to have 18 ounces of fluid or endure albumin starvation. Whey leaves the stomach very rapidly and can be fed every two hours, so that in 24 hours the child could have ten feedings or 20 ounces. Such a child would need 270 calories. The whey itself would provide only 180 calories and a half ounce of sugar would give 60 more or 240 calories, which is something short of the needs of the child and this mixture could be used only as a temporary expedient. However, the addition to such a mixture of 2 ounces of 16% cream (top 6 ounces of the quart) would add 100 calories, making a total of 280 or 10 more than the child needs. The whey cream mixture, however, does not leave the stomach so promptly as whey, and it would be necessary to increase the time between feedings and to give more at each feeding in order that the stomach may be properly emptied and the child be satisfied.

In spite of much abuse, condensed milk has been fed to a great many babies who have done exceedingly well upon it. Many of the bad results that have been laid at its door have followed because it was used without intelligence, or because of errors in the environment and hygiene of the child. The sweetened condensed milks, such as Eagle brand, contain so much added sugar that the carbohydrate content runs up more than 55% while the proteid is only about 7.5 and the fat about 8.5. This condensed milk is a heavy fluid weighing from 100 to 130 grains to the teaspoonful. So a mixture of one teaspoonful to the ounce is really not a dilution of 1 to 8, as usually taught, but of 100 or 130 to 480, roughly 1 in 4, which instead of being 7% sugar, 1% fat and .9% proteid, is respectively 14%; 2% and 1.8%, and so a teaspoonful to two ounces will give the percentages 1., 7., .9. In order to reduce this sugar to a percentage tolerated by the child, we must add water in the proportion of about one part of milk to 16 of water. This reduces the proteid to less than one per cent. While some children may thrive on this, in order that the proteid needs be met, the child, almost inevitably, is overfed with sugar. Most often the dilution used is greater than this, with the result that albumin is insufficiently supplied and that the child develops into a pale, fat, flabby, ill-nourished little individual, an easy prey to infections and to scurvy. There are now on the market a number of excellent preparations consisting of milk albumins in powder form, any of which can be used to enrich the albumin content when it is absolutely necessary to use sweetened condensed milk.

The unsweetened condensed milks provide a far more useful form of substitute food; these are equivalent in albumin content and caloric value to two and a half times an equal quantity of whole milk and in the absence of a thoroughly dependable clean certified milk supply, they are to be advised. The same plan as is outlined for using whole milk can be applied to the use of these milks replacing in its formulae each  $2\frac{1}{2}$  to 3 ounces of whole milk

by 1 of the unsweetened condensed. Not infrequently a mild diarrhoea follows the use of these milks but this can usually be overcome by diluting with rice water instead of dextrine gruel.

Lactated milk; not ordinary dairy buttermilk, is an exceedingly useful article of diet for sick children. It is indicated whenever the smear from the stool shows that the normal bacterial inhabitants of the intestine have given place to pathogenic invaders. Sometimes it is also of use in cases where the ordinary milk mixtures distress a child. One has always to consider the proteid minimum as well as the caloric needs of the child when feeding buttermilk, as well as with all other diets. The buttermilk is not well taken unless it is sweetened. For this purpose sugar and a gruel made from either dextrin, or one of the finer starch flours thoroughly cooked should be used in the proportion of 2 parts of buttermilk to one of gruel. It is essential for the success of such feeding, that the buttermilk be uncooked, as to replace pathogenic organisms by lactic acid bacilli is the aim of the feeding. The results that have followed the use of buttermilk in the cases of children recovering from acute infections of the intestines or of the lungs have been very gratifying.

The so-called modifiers that are added to milk, such as lime water, sodium bicarbonate, and sodium citrate, profoundly modify the chemical relations of the proteids in the milk and at present there is a good deal of controversy among observers as to their action. When clean certified milk is used as it should always be, lime water in small quantities is of very little service. With dirty milk used in large amounts lime water neutralizes acid and changes the paracasein into basic calcium casein which is more easy of digestion than the casein precipitated by rennin from milk that has become more than moderately acid.

The different foods advertised to the profession have little to recommend them to one who is cognizant of their composition and who understands the use of milk dilutions. The best of them are only milk modifiers and they are all expensive substitutes for other less pretentious articles of diet. Mellin's Food is malt sugar, and is sometimes of use to replace milk sugar in cases of constipation. Malted Milk is a mixture of malt sugar, dried milk and dextrine and is sometimes a very valuable temporary food, but it must be used with understanding and discretion and for no great length of time unless fruit juices and vegetable juices are also fed. The Allenbury Foods and the recent formulas of Nestlé differ very little from Malted Milk. Eskay's, Sunbrights and a number of others are simply mixtures of starch and dextrines, some of them with milk sugar. In themselves they are harmless, in fact they may be of use. The objection to them is that they are advertised as foods and the credit for the improvement that follows from feeding cow's milk mixed with them is credited to them. If they were advertised as milk modifiers only, there would be little objection to their use. As it is, baked flour, barley water, and thoroughly cooked dilute gruels of one sort or another are equally good, cost less and have the added merit of making no unwarranted claim.



The Germans, especially Finkelstein, have laid much stress upon overfeeding and their teaching is, briefly, that nutritional disturbances due to this cause are divided into four symptom complex groups. They call these four groups stages, of the same disorder, but they are not such in reality and should not be so classed for they do not progress from one to the other. In their nomenclature the first is the stage of disturbed balance; the second, the stage of dyspepsia; the third, the stage of intoxication, and the fourth, the stage of decomposition. The first stage shows a child that has been doing well and who begins suddenly to pass stools that are slightly abnormal and on an amount of food that provides it with more than sufficient calories and with enough albumin the weight remains stationary; there may be slight variations of temperature and a very marked intolerance for milk fat is developed. In the second stage the stools become numerous, they are green with a good deal of mucus, the temperature rises, becomes irregular and the weight line falls rapidly. In this country we are in the habit of considering such cases mild bacterial infections, which they probably are, the bacteria thriving because of the nutritional disturbance. Finkelstein reports that these children are very intolerant to lactose which can be found in the urine. In the stage of intoxication the clinical picture is one exactly corresponding to the condition known amongst us as gastro enteritis and is considered by the Germans to be entirely due to intolerance for the sugar and salts in the food of the child. The stage of decomposition or atrophy is one in which there is a rapid loss of weight. The word decomposition as used by the Germans is intended to imply the decomposition of the body tissue under the attack of the chemical products of imperfect metabolism, not decomposition of the stools. The result is what in our school of pediatricists is known as infant atrophy. Finkelstein treats these cases on the basis that the excess of salts in cow's milk is the damaging factor and the children get a mixture which is now quite the fad among the Germans and some pediatricists in America the so-called Eiweiss Milch mixture which is prepared as follows: The curd in the liter of whole milk is precipitated with rennin, usually in the form of a junket tablet, and the whey is allowed to drip off it. The curd is washed twice with tap water and is then forced through a fine sieve with a wooden spoon and mixed with a half liter of water and a half liter of buttermilk.

If the Germans had done nothing else than call attention to the prevalence of overfeeding they would have laid us under a heavy debt to them. Instead of adopting Finkelstein's classification of nutritional disorders it will probably be more practical to consider the disturbances from a little different point of view. As has been several times stated here, fat is the chief disturbing element in cow's milk. When the fat is alone to blame, the picture is usually that of Finkelstein's first stage. The child ceases to gain weight and the cessation in gain of weight in an infant is equivalent to wasting in an adult. Sleep is disturbed and the child becomes restless and uncomfortable, and the stools assume a

pale yellow, grayish or white color. In the most extreme cases the bowel movements are like putty in color and consistency and may have the odor of decomposed cheese. The urine becomes irritating and has an ammoniacal odor. In spite of increasing amounts of milk given because of the baby's stationary weight the child gets paler, less active, develops anorexia, very often eczema and if the well-meant excess of food is continued, goes on to marasmus. That in such cases it is the fat that is at fault can be demonstrated by stool examination which will prove to be composed largely of calcium and magnesium soaps and by the fact that with increase of milk the symptoms grow worse and with a decrease in the amount given they grow better. The evil effects on the metabolism are supposedly due to excretion of alkalis from within the body which it is taught are withdrawn in order to neutralize the excess of fatty acids.

When the overfeeding is with sugar it is evidenced by the stools which become frequent, sour in odor, irritating to the skin, and to the eye are watery, brownish yellow or brown, something like thin mustard. For some unknown reason, in the presence of a cereal decoction sugar is less apt to disturb the digestion. The Germans are very cautious in the use of sugar because they are taught to consider it as the element in substitute mixtures which tends to raise the temperature and cause intoxication and it is certainly true that in hot climates babies fed on sweetened condensed milk are more liable to such intoxications. Some children fed with excessive amounts of starch are apt to have frequent watery, frothy, brown, irritating stools although they remain in fairly good general health. These are prone to convulsions and sometimes to oedemas. They are probably in no way referable to the starch indigestion but to the fact that such children rarely receive sufficient proteid. It is the opinion of most observers that the different sugars have not quite the same relative nutritional value and that we cannot always replace one by another.

Von Pirquet in a recent summary of the views of the present Berlin school has dwelt on the four principles that this group of teachers consider basic. The first one is that there is a characteristic weight and temperature reaction of the normal child to increasing amounts of food. The second is that it is easy to determine the smallest amounts of food on which the child will gain weight. This they call the minimum. There is also a limit to the tolerance of the infant for large amounts of food and this limit at which a child ceases to gain weight while being fed increasing quantities of food is called the maximum. There is also a third ingestion point which lies between the minimum and the maximum which the Germans call the optimum, a point of intake which indicates the amount of food that an infant should take while developing a steadily increasing weight and a continuous physiological wellbeing. Von Pirquet has developed a number of ingenious graphic methods of demonstrating these points.

In summing up, the following principles must guide our attempts at substitute feeding.

*First*, we must keep in mind the normal milk

need of the child and supply it as near the optimum,  $1\frac{1}{4}$  ounces of proteid containing fluid per pound per day as possible. If we do not hold the views of the extremest of the Germans, we will recognize casein overfeeding and utilize the protecting colloidal action of dextrine, and if this be insufficient of whey as well, remembering that the albumin value of whey is less than 1-3 that of milk.

*Second*, we will recognize that fat indigestion is the commonest digestive disturbance that infants are prone to, that it may express itself as gastric disturbance, distress, vomiting, hypochlorhydria with gastric spasm, or as intestinal disturbance with extreme constipation, or under some circumstances a diarrhea with the scrambled egg stool, under other conditions as metabolic disturbance with ammoniacal urine, head sweating, and loss of weight.

*Third*, we will remember that gastric digestion is a minor factor in milk digestion, that gastric disturbances are of importance only when there is very much interference with motility and acid secretion and when the stomach empties itself slowly or incompletely. Normally the emptying time is invariably proportionate to the concentration of the food, especially of the fat concentration. Thus weak foods can be fed at shorter intervals than more concentrated food. Whey may be fed every hour, skimmed milk every hour and a half, one-third milk every 2 to  $2\frac{1}{2}$  hours, etc.

*Fourth*, that while digestibility of mixtures may be modified by modifying its proportion; that the metabolic disturbances depend on the amounts of the different food principles ingested in 24 hours; and that overfeeding is the common error, underfeeding is comparatively rare.

*Fifth*, that the efficiency of digestion demands that seven feedings in 24 hours is the maximum for a bottle baby, though usually to be advised in the early months, and that in the middle and last months of the first year, six and five feedings in the 24 hours are to be advised, provided the energy needs 45, 40, 35, calories per pound per day, and the minimum albumin needs are met.

*Sixth*, that while dairy milk is always to be strenuously insisted on provided that a clean supply, preferably a certified supply, is at hand, it must not be forgotten that clean condensed milk is a better food than dirty dairy milk and that from it in its unsweetened form a thoroughly satisfactory substitute food can be evolved, provided care is taken not to violate the physiological principles laid down.

*Seventh*, that certain children show individual intolerance for one or another of the food elements. Some tolerate fat badly; such can have their needs met by the use of sugars or dextrines. Some tolerate sugars badly, and these, too, usually tolerate dextrines. Some show intolerance for one type of sugar; this child vomiting on reasonable amounts of lactose and tolerating maltose in excess or vice versa, also that some few are intolerant to casein and must be fed whey proteids or vegetable proteids.

*Eighth*, that by a few simple stool examinations we can elucidate and often clear up a difficult feed-

ing case, puzzling in the unaided light of the clinical picture.

*Ninth*, that top one-third and top one-half milk mixtures provide a food poorly balanced between energy and albumin content. Simple dilutions, at times slightly enriched by fat with added sugar and added dextrines provide a much better means of substitute feeding. The success of most of the popular infant foods depends on the fact that they are rich in colloidal dextrines and that they use simple dilutions.

*Tenth*, that for practical purposes thirty-two ounces of milk is the greatest daily milk ration any child at any age should receive. That eight ounces is the maximum feeding, and that for the purposes of enrichment a simple plan is, to remove from the quart bottle the first 28, 26, 24 or 20 ounces. Very few children will tolerate sixteen-ounce top milk in a dilution sufficiently concentrated to supply their proteid needs.

*Eleventh*, that we are prone to keep children exclusively on milk for too long a period. At about the tenth month milk feeding should be augmented by a daily meal of cereal and fruit, and if the child has shown any degree of intolerance to milk fat, the cereal meal may be begun earlier and may be augmented by a second meal of vegetable bouillon and dextrine gruel.

*Twelfth*, that a clean milk supply is of such inestimable advantage that it is the duty of every physician to strive in every way to educate patients to an appreciation of the advantages of certified milk.

(Concluded.)

## UNUSUAL CASES OF SYPHILITIC OSTEO-PERIOSTITIS.\*

By RENÉ BINE, M. D., San Francisco.

### CASE I.

Vertebral syphilis is so unusual a condition as to render the presentation of this case of more than passing interest. In its advanced stages, because of the similarity of signs, it is often difficult to differentiate such a lesion from infectious, traumatic or tuberculous processes, and in the pre-Roentgen and ante-Wassermann days, I feel certain that numerous cases were overlooked.

Ziesche, an assistant of Minkowski, in Breslau, has recently reviewed the subject of syphilitic vertebral inflammation, collecting but 88 cases including one of his own. Of these, 61 cases involved the cervical spine. Of this number 22 died, 6 as a result of cord compression and respiratory paralysis, and 14 with symptoms of a progressive marasmus. In 39 cases, recovery is said to have ensued, but statements as to the degree of function regained are omitted in practically all.

The great mobility, combined with the great amount of work it performs, possibly explains the comparative frequency with which the cervical spine is affected.

It is not my purpose to discuss this subject at any length. Ziesche's paper, which appeared less than six months ago (*Mitteilungen aus den Grenzge-*

\* Demonstration: S. F. County Medical Society, Sept. 5, 1911.



bie ten der Medizin und Chirurgie, Bd. 22 S. 357) is very complete and to it I beg to refer those interested.

Mr. M. G., age 40, clerk, was referred to me in October, 1910, with a history very briefly as follows:

*Family History:* Negative, except perhaps that he was the youngest of 13 children.

*Past Illness:* Chancre and skin eruption 9 years ago, mercury and iodides used periodically for 2½ years. Gonorrhea several times, with 6 years ago testicle involvement. Malaria 12 years ago.

*Present Illness:* For the last 6 months patient has been suffering with intense pains in both knees, right arm, right shoulder, hands, and in the lumbar region of the spine. Pains are worse at night and prevent sleep. Has tried various drugs and has visited several springs, but without relief. Weight has decreased from 154 to 128 pounds, appetite being poor. Patient also mentions the fact that his memory is getting poor, and that his "eyes blur easily."

*Examination* at this time showed a poorly nourished, rather young looking individual. (His appearance had led one of the medical men consulted to suspect tuberculosis.) Anterior and posterior cervical glands were moderately enlarged; right epitrochlear, axillary and inguinal glands were large and very hard. Chest and abdomen practically negative. Pupils small, irregular, reactions to light sluggish, especially the right one. Discs pale around the edges. Slight bilateral ptosis. (Congenital?) All tendon reflexes present and lively; knee jerks very much exaggerated. Except for inconstant errors in recognition of heat and cold in left axillary and left scapular region, no sensory changes noted. Both knees decidedly swollen and bony parts apparently thicker; only the left knee tender on pressure. X-Rays of knee joints of no aid in diagnosis. Right arm not tender; the bone apparently thicker. Slight lateral curve to lumbar spine. Wassermann test double plus.

*Diagnosis:* Syphilitic osteoperiostitis, possibly tabes.

The patient disappeared after 3 weeks and was not seen until July 24, 1911. He now complained that for a period of two months his neck had been getting gradually stiffer and that for the last week he was unable to move it at all. Has steady, severe pain with nocturnal exacerbations. Neck and head excruciatingly tender. "Weight of hat is too much, can't even touch head with a comb." Absolutely unable to sleep, and reclining position so painful he shuns the bed. "If tries to move the head, feels and hears something crack." Has become painfully thin. Has some difficulty in swallowing.

At this date the patient presented a pitiful appearance. He held his head absolutely fixed, tilted upward and to the right, and protruding slightly forward on the neck.

There was a definite projection of the 6th and 7th cervical spines, above which there was an acute depression as shown in Fig. II. No muscle spasm. The tenderness at the level of the 6th and 7th cervical vertebrae was slight compared with that



Fig. I.

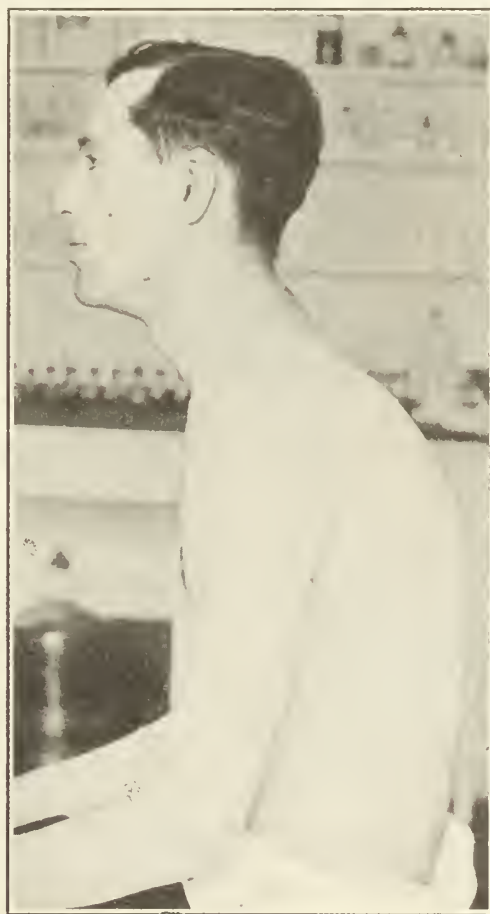


Fig. II.

higher up in the cervical region. There was no tenderness or projection in the pharynx. There was some impairment of mobility of the jaw.

Examination of the nervous system at this date showed practically the same condition as in October, 1910. Dr. Sol Hyman, who saw the patient with me at this time, feeling as I did, that it was impossible to more than guess at the real nature of the lesion in the spine, producing what seemed to be an occipito-atlantoid dislocation, X-Ray plates were taken by Dr. Painter, who has very kindly permitted me to use some of his collection of normal plates for the purpose of comparison, as but few of us are sufficiently expert in this work to properly interpret such pathological rarities without assistance. The plates show better than any description what has taken place in the spine (Figs. III, IV, V, VI).



Fig. III.

Normal anterior-posterior view taken through mouth.

Particular attention was paid to those parts which had produced his symptoms in October, 1910. The right humerus although entirely painless and devoid of tenderness, showed decided thickening and roughness along its shaft. An X-Ray plate was therefore taken a few days ago.

The patient has been given injections of cacodylate of mercury with iodides, per mouth, up to 20 gms. daily. Quite recently a brace has been obtained, and he is now wearing it much against his will, but it is only thus that we can prevent possible further displacement and cord compression. Under treatment the pain has disappeared as if by magic; the patient can eat, sleep and move his head quite freely. He has been gaining at the rate of

about 4 lbs. a week, his present weight being 143 lbs.

I shall endeavor at a future date to report the course of this case.

#### CASE II.

This case has been more or less under observation for 2½ years and presents so many interesting features as to warrant a rather detailed recital. The following are the salient points in the notes taken April 17th, 18th and 19th, 1909:

*Family History:* Negative.

*Habits:* Good.

*Past History:* Pertussis age 2½. Ruptured as result. Wore truss 10 years; cured. Always weak chested as child; in 1902 a left apical lesion was discovered and bacilli said to have been demonstrated in the sputum. In 1905 was 3 weeks in bed on account of bronchitis. In 1909 had rheumatism



Fig. IV.

Anterior-posterior view showing absence of odontoid process and apparent destruction of intervertebral substance, with approximation of the two vertebrae and tilting of head to right.

in right leg, elbow, arm and hand; some swelling occurred but patient does not know if fever was present.

*Present Complaint:* Has felt poorly for some months; has lost a great deal of weight (40 lbs.?) ; has fever and sweats at night. During the last few days, severe pain in the middle of the right arm, unrelieved by external applications. Patient noticed a lump in the arm a few days ago.

*Examination:* Chest shows signs of old apical involvement. Otherwise negative. Abdomen negative. Anterior and posterior cervical and right epitrochlear glands show slight enlargement. Right arm is very tender about middle third of the anterior surface of humerus, and a distinct swelling is felt





Fig. V.  
Normal lateral view.



Fig. VII.  
Right humerus.



Fig. VI.  
Lateral view showing tilting forward of first cervical  
and approximation of first and second spines.

here. The inner condyle is also quite tender to the touch. Blood shows moderate anemia.

The evening temperature fluctuated between  $99^{\circ}$  and  $100^{\circ}$ . The patient objected to having X-Ray plates taken of the arm, being greatly relieved by large doses of salicylates.

On May 12, 1909, patient returned with the complaint of pain and swelling of the lower half of the right side of the face, and of a recurrence of



Fig. VIII.

pain in the right arm. The inferior maxilla presented a definite nodular swelling along its lower border. The diagnosis of periostitis being made and X-Rays being insisted on, the family induced the patient to cease her visits on the ground that too big a case was being made out of what some of the very best European physicians had simply called rheumatism.

July 14th the patient returned with the story that the pains in the arm were very much improved by the continued use of salicylates, but that the pain in the inferior maxillary region had been so severe that a dentist she had consulted had extracted the root of the first molar tooth on that side in the hope of relieving her. This helped her for a short time only and at the request of her dentist, an X-Ray of the jaw was taken. The dentist decided that there was definite bone necrosis, in no way connected with the teeth. A second dentist be-



Fig. IX.  
Right humerus.

lieved the contrary. The X-Ray plate showed far more changes than palpation of the jaw indicated (Fig. VIII). A third dentist, who, at the patient's request, examined her with me on July 19th, agreed with me that the condition was a systemic one, most probably luetic.

At this time there was considerable tenderness along the vertebral border of the scapula; the acromial extremity of the left clavicle was definitely enlarged and tender; the left humerus and lower part of manubrium were also tender. The shaft of the right humerus was decidedly enlarged and roughened, especially along the inner surface, while along the anterior aspect the swelling was less than it had been in April.

July 27th, X-Ray of arm; the plate shows the condition far better than words (Fig. IX).

July 24, 1909, the patient had an epileptiform seizure, since which time there have been three more, the last one on Oct. 11, 1910. The patient admits having had similar seizures beginning in 1899, after "drinking out of a glass used by an epileptic girl." The patient has no aura preceding the attacks, but bites her tongue and occasionally has incontinence of urine during the seizure. Having never seen her in one, it is hard to say just what they are like. The patient is of a very hysterical type, and at least two attacks followed emotional excitement.

The eyes showed slight refractive errors,—no changes in fundi.

Sept. 8, 1909, Wassermann triple plus.

Since this time the patient has shown considerable improvement. The arm still shows thickening, but the jaw has assumed normal proportions. The patient has not followed treatment as she should, refusing all forms of injection treatment, including, more recently, salvarsan; she contents herself with inunctions and iodides. Last March the Wassermann was still positive.

#### TENTATIVE CLASSIFICATION OF EXCEPTIONAL CHILDREN.

By MAXIMILIAN P. E. GROSZMANN, Pd. D.,  
Plainfield, N. J., May, 1909, Educational Director of the National Association for the Study and Education of Exceptional Children.

##### A. Normal Children.

(Those who are in accord with the norm, or standard, of human nature.)

##### 1. Typical Children.

(Those who conform to the average human type, representing the present stage of civilization.)

##### 2. Pseudo-atypical Children.

(Those who only seemingly deviate from the average human type.)

##### a. Children Whose Progress in School was hindered by:

1. Change of schools;
2. Slower rate of development, without atypical retardation;
3. Temporary illness;

4. Slight physical difficulties, such as lameness and minor deformities, slightly impaired vision and hearing, adenoid vegetations, etc. This last class is similar to Group 2. of the Pathological Classes, Sub-normal Group; only that it represents **retarded** instead of **arrested** development.

##### b. Children of Unusually Rapid Development, without genuine (pathological) precocity ("bright" children).

##### c. Children Who are Difficult of Management. Naughty, troublesome, spoiled children, without genuine perversity.

##### d. Neglected Children.

Pseudo-atypical children may be rapidly restored to normal equilibrium.

##### 3. Atypical Children Proper.

(Those who deviate from the average human type.)



Hereditary, congenital, and environmental causes.

a. Neurotic and Neurasthenic Children.

Over-stimulation and precocity. Genius. Irritability. Excessive imagination and lack of mental and emotional poise. Hysteria (Dementia Praecox). Lack of concentration. Negativism. Contrariness. Perverse tendencies. Sexual precocity. Fears and obsessions. Defective inhibition. Tic. Motor disturbances. Vasomotor, sensory, and trophic disturbances.

b. Children of Pathologically Retarded Development.

Impaired conceptual ability due to retarded brain development. Physiological retardation of growth rate. Special physical causes: Chronic catarrh, chronic difficulties of nutrition, serious chronic affections of vision and hearing, venereal infection, etc.

Any of these classes, through neglect or adverse environmental influences, may drop down in the scale of development, into lower classes. In other words, the individuals composing them, may lose their normal characteristics and degenerate into permanent defectiveness. It is a matter of potentials and their direction. On the other hand, having the normal potentials, atypical and pseudo-atypical children may be restored to normal equilibrium.

B. Subnormal Children.

(Those whose potentials are incomplete, or underdeveloped.

1. Defective Children.

Hereditary and congenital causes.

Epileptics, blind, deaf and dumb, deformed, paralytics, crippled, etc.

These children can never attain the perfect norm of human nature, as their potentials are incomplete.

2. Children of Arrested Development.

(Acquired abnormality or defectiveness.)

a. Pathological Classes.

Children born apparently normal, but having their development checked by:

1. Hereditary causes, manifesting themselves at certain developmental periods;
2. Special causes, as diseases, fright, accidents, etc.

The arrest of development may be only partial, as in the case of children deformed by accident; then, there will be mainly a condition of incompleteness, as in Group 1, Defective Children.

b. Submerged Classes.

Environmental influences have prevented them from attaining full maturity.

Children of arrested development will remain essentially subnormal, no matter how well they may be educated within their limits.

3. Children of Rudimentary or Atavistic Development.

The primitive type, representing mental, moral

and social instincts and activities on the savage, barbarian, or generally uncivilized level.

Primitive races.

Atavistic individuals. These approach the abnormal level. They represent a reversion of instincts and capacities in spite of being born from apparently normal parents.

Groups A and B Constitute Human Society.

C. Abnormal Children.

(Those who deviate from the norm, or standard, of human nature.)

Hereditary and congenital causes.

Cretins, cretinoids; microcephalics, macrocephalics, hydrocephalics; idiots, idioimbeciles, imbeciles and feeble-minded; insane; criminals; moral imbeciles and moral perverts.

Abnormal children stand outside of human society and require custodial or institutional care permanently.

DEFINITIONS.

(Standard Dictionary.)

Norm: A rule or authoritative standard.

Normal: According to an established law or principle; conformed to a type or standard; regular or natural.

Abnormal: Deviating from the natural structure, condition, or course; unnatural.

Type: One of a class or group of objects that embodies the characteristic of the group or class; an example, model, representative, or pattern, as of an age, a school, or a stage of civilization.

Typical: Having the nature or character of a type.

Child History.

A. Name of person making the report:

B. Date of report:

Etiological statements:

1. Name of child in full;
2. Date of birth of child;
3. Birthplace of child;
4. If foreign born, when did child come to this country?

5. White or colored?

6. Father: a. Full name:

b. White or colored?

c. Address, business:

home:

Telephone:

Telephone:

d. Occupation:

e. Date of birth:

f. Birthplace:

g. Living or dead?

If dead, state cause and time of death:

h. Married more than once?

i. Organic diseases he has had, including venereal.

k. Mental, brain and nervous diseases: (Underline) epilepsy, insanity, neuroses, striking personality, precocity, weak-mindedness, intemperance, crime, suicide, etc.

Use spare space for further description. Additional information:

7. Mother: a. Full name before marriage:

b. White or colored?

c. Address, business:

home:

Telephone:

Telephone:

- d. Occupation:  
e. Date of birth:  
f. Birthplace:  
g. Living or dead?  
If dead, state time and cause of death:  
h. Married more than once?  
i. Organic diseases she has had, including venereal:  
j. Mental, brain and nervous diseases: (Underline) epilepsy, insanity, neuroses, striking personality, precocity, weak-mindedness, intemperance, crime, suicide, etc.  
Use spare space for further description.
1. Additional information:
8. Religious connections of parents:  
9. Are father and mother blood relations?  
If so, how near?  
10. Age of father at marriage: At birth of child:  
Age of mother at marriage: At birth of child:  
11. Was child born in marriage or out of marriage?  
12. Give order of births of all children, making the one whose history is given with \*:  
Sex: Living: Cause of Still birth? Miscarriage? death:
- |    |    |
|----|----|
| 1. | 5. |
| 2. | 6. |
| 3. | 7. |
| 4. | 8. |
- Full Term: Short Term: Labor: Physical Mental Condition:
- |    |    |
|----|----|
| 1. | 5. |
| 2. | 6. |
| 3. | 7. |
| 4. | 8. |
13. State any further facts about the conditions under which birth of child occurred:  
14. Is there anything remarkable to report concerning mother's pregnancy with child? Sickness? Violent emotional storms? Fear? Anxiety? etc.  
15. Paternal grandparents:  
Grandfather: Grandfather:  
a. Name?  
b. White or colored?  
c. Occupation?  
d. Date of birth?  
e. Birthplace?  
f. Living or dead?  
Cause and time of death: .  
g. Organic diseases:  
(See 6, i.)  
h. Mental and nervous diseases:  
(See 6, k.)  
i. Additional information:  
16. Maternal grandparents:  
Grandfather: Grandmother:  
a. Name:  
b. White or colored?  
c. Occupation?  
d. Date of birth?  
e. Birthplace?  
f. Living or dead?  
Time and cause of death:  
g. Organic diseases:  
(See 6, i.)  
h. Mental and nervous diseases:  
(See 6, j.)  
i. Additional information:  
17. Any additional information which can be given about  
Uncles:  
Aunts:  
Other relatives:  
Remoter ancestors:  
**Child's Own History.**  
Physical:  
1. Was there deficient animation in the child at birth?  
2. Had the child convulsions, fits, spasms, or spells soon after birth?
3. Was the child nursed?  
By whom?  
How long?  
4. May any unfavorable influence have resulted therefrom, such as insufficient nourishment through the mother, or the transmission of syphilis or other injuries, etc.?  
5. Or was the child bottle fed?  
State nature of feeding, time, etc.  
6. How often was the child vaccinated?  
When?  
Did it take?  
Were changes noticeable after vaccination?  
7. When did the child learn to walk?  
8. When did the child learn to talk?  
9. How did language develop?  
10. When did the nightly bed-wetting cease?  
Or does it still take place? Regularly or occasionally?  
11. State whether any when the child had an affection of: Lungs: Heart: Stomach: Colon: Appendix: Liver: Bladder: Kidneys: Genital Organs: Thyroid Gland: Other vital organs:  
In each case state time and nature of affection.  
12. Give date of: Measles: Whooping Cough: Scarlet Fever: Diphtheria: Varioloid or Typhus: smallpox  
Cerebro-spinal meningitis  
Rickets: Scrofula:  
Infantile paralysis: Ophthalmia:  
Rupture: Inflammation of bowels:  
Pneumonia: Neuralgia:  
Rheumatism: Hemorrhage:  
Eye disease: Ear disease:  
Difficulties of nose and throat:  
Head eruptions: Headaches:  
Fits and convulsions Epilepsy:  
St. Vitus Dance (Chorea):  
Inflammation of the brain:  
Insanity:  
In each case, state character of affection, and whether any traces are left. Cross out what child has suffered from.  
13. When did the child get first teeth?  
14. Have second teeth come? How many:  
15. Has the child ever received directly or indirectly any injuries to the head, concussion of the brain, etc.? Has it had any falls? If so, what consequences followed them?  
16. Has the child ever undergone any surgical operation?  
What kind? When? Name of surgeon?  
Consequences:  
**Description of Child.**  
Physical data:  
1. Height, without shoes and stockings:  
2. Weight, without clothing:  
3. Color of hair:  
4. Color of eyes:  
5. Describe any peculiarity in the size or form of the head:  
6. Describe any peculiarity in the features:  
7. Is the child a mouth breather?  
8. Describe the present condition of teeth:  
9. Does the child squint?  
10. Has the build of the body any striking peculiarities?  
Neck: Thorax:  
11. Does the skin show any peculiarity?  
12. Have postures and gait anything striking?  
Does the child walk unsteadily?  
Bent forward?  
With fully extended or bended knees?  
13. How does the child go up and down the stairs?  
14. Is the child deformed or crippled?



15. Are the hands normally constructed?  
Do they feel warm or cold or flaccid?  
Does the child grasp with right hand?  
With left hand?  
With both hands?  
Can child voluntarily spread and bend fingers?  
Can child eat alone?  
Can child drink alone?  
Can child dress completely?  
Can child undress completely?  
Are any weaknesses of the muscles of hands or fingers present?
  16. Do noticeably peculiar movements appear?  
Of hands:      Legs:      Face:      Muscles:
  17. Are any of the child's limbs lame or stiff? If so, what is the reason?
- Functions:
1. Does the child masticate food properly?
  2. Is digestion normal?  
Do digestive disturbances appear?
  3. In the case of an adolescent girl:  
When did she begin to menstruate?  
Are there any difficulties of menstruation?  
Which?
  4. Does child wet clothing?      Bed?  
Does the child soil clothing?      Bed?
  5. How does the child sleep?      How long?  
Does nightly awakening in alarm, or somnambulisms appear?  
Does child sleep with closed or open windows?  
Does child sleep in the dark or with light burning?
  6. Does child sleep alone in bed and in room?
  - Are any disorders of sense apparent?  
Hard-hearing?      Short-sightedness?  
Far-sightedness?      Astigmatism?  
Hyper-sensitiveness of skin?  
Dull sensibility to stimuli upon the skin, like those produced by warmth, cold impact, pressure, tickling, etc.  
Deficient sense of taste?  
Deficient sense of smell?  
Deficient sense of touch?  
Deficient muscular sense?  
If there is hyper-sensitiveness of any of these sense organs, state so.
  7. Are any disturbances of speech present?  
Stammering:      Stuttering:  
Impetuous speech:      Sluggish speech:  
Lisping:      Indistinctness:
  8. Moral Status:  
1. Is sexual excitement noticeable?  
2. Has the act of self-abuse, or masturbation, been observed?
  3. Does the child evince normal love for parents, sisters and brothers?  
Or does child care for them only to accomplish selfish ends?
  4. Does child obey willingly?  
If not, how is disobedience shown?
  5. What correction, if any, has been used at home?  
What was the result?
  6. Is the child religiously inclined?
  7. Has the child the feeling of reverence?
  8. Is the child respectful?
  9. Does the child show self-respect?  
Has the child the sense of modesty?
  10. Has the child the sense of responsibility?
  11. Has the child seriousness of purpose?
  12. Does the child manifest any dangerous traits of character?  
Does child tell falsehoods?  
Does child deceive?  
Is child destructive?  
To clothing?      To furniture?  
To books?      To anything else?  
Is child dangerous with fire?  
Is child cruel to animals?      To other children?
  13. Is the child inclined to run away from home, or school, or does it show nomadic tendencies in other ways?
  14. Does the child offer any special difficulties to guidance in still other respects?  
If so, in what do they consist?
- Peculiarities and Habits:
1. Does the child show morbid conditions of fear?  
How are these conditions expressed?
  2. Is the child rather of a gay, or of a sober mood?
  3. Is the child of a nervous temperament?
  4. Does the child laugh or cry easily without cause?
  5. Is the child easily affected by suggestion?  
Is he given to auto-suggestion?
  6. Is the child sympathetic, or indifferent, or malignant, in the presence of others in pain?
  7. Does the child like to nag others?  
Does the child quarrel easily?  
Is it peaceable?
  9. Is child communicative?      Self-centered?
  10. Is the child social?      Retiring?
  11. Is the child kind?      Malicious?
  12. Does the child appear capricious?      Spiteful?  
Violent?      Passionate?
  - And under what circumstances?
  13. Is the child lazy?      Slow?  
Quiet?      Slow?  
Restless?      Excitable?
  14. Is the child neat and clean in dress?  
In room?
  15. How are the child's table manners?  
Does the child use knife and fork?  
Or spoon only?  
Is child gluttonous?  
Is there preference for any food? Or drink?  
Is there aversion for any food or drink?  
Does the child chew with open or closed lips?  
Does the child eat, or try to eat uneatable things?  
Does the child use tobacco?      Intoxicants?
  16. Has the child any other habits, capacities, peculiarities, or fads?      What are they?
- Mental Status:
1. Does the child possess some prominent gift?
  2. Is the child generally precocious?
  3. Does the child appear to be ahead of other children of same age?
  4. Has the child's development appeared to be behind that of other children of same age?  
If so, since when, and in what respects?
  5. Has the child a good or a poor memory?  
Is it mechanical or logical?
  6. How is the child's attention?
  7. Can child concentrate, or is it scattered-brained?
  8. Is the child's thought connected or disconnected?
  9. Is the child's reaction short or long?
  10. Has the child the ability to conceive clearly?
  11. How is the child's power of imagination?
  12. How is the child's power of imitation?
  13. Has the child initiative?
  14. Has the child creative ability?
  15. Has the child the power of judgment and self-direction?
  16. Is the child circumspect?      Deliberate?  
Reckless?      Thoughtless?
  17. Can the child freely and intelligently repeat any story?  
What, for example?
  18. Has the child already received instruction  
Where, when, how long, from whom?  
What of its success?  
In what subjects of instruction does the child accomplish most?  
In what subjects has there been the least success, and what was the probable cause?
  19. Can the child read?      How much?  
Is there any word-blindness?
  20. Can the child write?      How much?  
Is there any peculiarity about the writing?
  21. Can the child draw?      Model?  
Paint?
  22. Can the child distinguish colors?  
What colors?

23. Does the child distinguish form?  
Give details?
  24. What are the child's ideas of number?  
Can it count?                      How Many?  
Can it add?                        Subtract?  
Multiply?                         Divide?  
Can it generally compute with certainty?
  25. What are the child's ideas of time?  
Does the child know past, present and future?  
Can it understand different lengths of time?
  26. What is the child's idea of distance?
  27. Can the child locate itself easily?  
Can it find places?
  28. Is the child fond of music?  
Can it carry a tune?  
Does the child play an instrument?
  29. Does the child like to busy itself, and self-actively, as in playing and learning?
  30. With what does the child like best to busy itself?
  31. Is the child skillful or helpless in practical occupations?
  32. For what does it show special interest and skill?
  33. Can the child handle tools?
  34. What can the child make?
  35. Can the child run errands?
  36. Can the child do housework?              What kind?
  37. Can the child throw a ball?  
Can the child catch a ball?
  38. Can the child tie and untie a knot?
- General:

1. Are the atypical periods continuous or periodic?  
In the latter case, at what intervals do they appear?  
And with what other symptoms are they connected? (e. g., digestion, menstruation, etc.?)
2. Can any special causes be assigned for the child's condition, such as:  
Errors of education?  
Long accustomed inactivity?  
Bodily or mental over-exertion?  
Violent emotional storms, fright, fear, anxiety, etc.
3. What medical means have been applied heretofore to remove the atypical conditions?  
When, by whom, and with what success?

#### Directions.

Please answer these questions as fully and as accurately as you can; if necessary with the assistance of your family physician or consulting specialist.  
Write as plainly as you can, so that there be no chance of misreading your answers.

All information given in reply to these questions, desirable and necessary as it is for a full understanding and diagnosis of the case, will be considered confidential.

It is requested to send photos of the child at different stages of development. If parents wish these photos returned they are expected to permit the school to take copies for its record of the child's case.

## THE DIFFERENTIAL DIAGNOSIS OF LABYRINTHINE AFFECTIONS.

By G. P. WINTERMUTE, M. D., Oakland.

The characteristic symptoms of labyrinthine affections are impairment of hearing, tinnitus, vertigo, spontaneous nystagmus, disturbance of equilibrium, sometimes nausea, vomiting and vasomotor disturbances, and very rarely head nystagmus. These symptoms may be excited either by disease of the end organ—the labyrinth—or by disease involving the nerve tracts leading from the labyrinth to its cerebral centers; and the symptoms vary in so far as the process is irritative in its effects or destructive, regardless of whether the lesion is in the end organ or along the central tracts.

Labyrinthine vertigo is characterized by rotation; objects rotate around the patient in one of the three planes corresponding to the planes of the semi-circular canals, or the patient has the subjective sensation

of rotating himself. It is unaffected by closing the eyes. Ocular vertigo is milder and characterized by its reference to external objects which seem too near or far, or have a false inclined direction, which leads to confusion of distance and direction. It is immediately ameliorated by closing the eyes. Vertigo due to impaired muscular sense is characterized by improper movements following over or lesser innervation of the muscles, due to a false subjective sense of their position. The patient's sensation in regard to his own attitude is incorrect. Central vertigo, due to the effects of an intoxication, follows one of these three types or combines them. All vertigos are aggravated by sudden change of posture. If we remember the rotary characteristics of labyrinthine vertigo, it is not difficult to recognize.

Labyrinthine vertigo is always accompanied by spontaneous nystagmus. This nystagmus which is produced either by irritation or sudden destruction of either the end organ or the central tracts is rhythmic in character,—that is, it is composed of a rapid movement in one direction, followed by a slow movement of recovery in the opposite direction. The rapid movement comes from the cortical centers; the slow one is the result of impulses from the labyrinthine tracts. In congenital or early acquired visual defects, such as are found in albinos, miners, and in diseases of the optical tract we have an optical nystagmus which usually is oscillatory in character,—that is, the excursions in both directions are made with equal rapidity. Labyrinthine nystagmus does not disappear when the eyes are closed and may be readily palpated by placing the fingers on the closed lids. Optical nystagmus is sometimes rhythmic in character, but it always ceases upon closing the eyelids as contrasted to the labyrinthine.

Nausea, vomiting and vasomotor changes are the reflex results of the vertigo and are found in varying degrees according to its intensity. Likewise disturbance of equilibrium is an accompaniment of the vertigo and is a reflex effort to maintain the balance. These disturbances have an early and very much more marked form due to irritation or sudden destruction of the labyrinth which is characterized by reaction falling. The patient has the sensation of falling to one side and throws himself (thus actually falling) in the opposite direction. After destruction of the labyrinth the disturbance of equilibrium gradually ceases, so far as the patient's statements and the eyes can testify, but nevertheless if a series of vigorous tests are made, such as hopping on one foot, walking backwards, and testing on the goniometer a latent disturbance of the equilibrium will become manifest even in the later stages. This late disturbance probably results from the impaired sense of movement through the three dimensions of space following the destruction of one labyrinth.

This group of labyrinthine symptoms will vary according to whether the lesion is one which is irritative or one which has passed on to destruction. Hearing is present but diminished in an irritative lesion of the cochlear tract; it is lost in destruction. Tinnitus is very noticeable in an irritative lesion but absent after destruction. Spontaneous nystagmus is to the affected side in an irritative lesion; to the opposite side in destruction. Vertigo and its accom-



paniments are very pronounced in irritative stages but gradually pass off after destruction.

We must consider the course of the eighth nerve tracts in differentiating conditions due to a lesion in the central tracts as opposed to one in the labyrinth itself.

The eighth nerve consists of two portions: the cochlear, which is the auditory division coming from the organ of Corti; and the vestibular division, which is dynamic and static in function, coming from the crista ampularis of the semi-circular canals and from the maculae of the saculus and utriculus of the vestibule. The nerve courses from the labyrinth to the medulla in close proximity to the seventh nerve. It enters the medulla in the region of the upper olivary body at the junction of the pons. The cochlear division ends in the ventral acoustic nucleus, which in turn is connected with the olivary body and with the auditory centers in the temporal lobe of the opposite side. The vestibular portion of the nerve ends in three nuclei, the nucleus vestibularis triangularis, Dieter's nucleus and Bechterew's nucleus, all three being a contiguous group of nerve cells. These vestibular nuclei have the following known connections: with the cerebellum by a large bundle of fibres known as the acoustico-cerebellar tract; with the superior olivary bodies of the opposite side; with the spinal cord by a tract, the distribution of which is unknown, called the descending olivary tract; and with the nuclei of the sixth, fourth and third nerves of the same and opposite sides. This last group, together with tracts coming to the eye muscle nuclei from the cortex, constitutes the path of the nystagmus reflex. Among the general nervous diseases which may involve these tracts and give rise to one or more labyrinthine symptoms are multiple sclerosis, Friedreich's ataxia, syphilis of the nervous system including gumma, tabes, and general paresis, bulbar and pseudo bulbar palsy, tubercular infiltrates, hemorrhages, acute toxemia from alcohol, quinine, salicylates and other poisons, tumors, abscesses, etc. These conditions, with the exception of abscess of the cerebellum, can hardly be confused with a local condition in the labyrinth itself, as the history of the case, the absence of ear suppuration, the coincident symptoms caused by the lesions affecting other nuclei and tracts which have no direct connection with the labyrinth tracts will all point toward the central nervous system as the seat of the disease. Tumors of the cerebellum and pons will display no signs of local ear inflammation, the ataxia will differ in type from the reaction falling of the labyrinth, and they will present the symptoms of increased intracranial pressure.

Inasmuch as fully one-half of the cases of *cerebellar abscess* follow a suppurating labyrinth, and a greater proportion of them are associated with a chronic purulent otitis media, abscess of the cerebellum is likely to cause confusion with labyrinth suppuration.

We must be guided here by the general symptoms and by their special symptoms in common. Of the general symptoms of cerebellar abscess, which we do not have in labyrinth suppuration, are: the percussion tenderness common to both extra dural and cerebellar

abscess, rigidity of the neck and tendency of patient to support the head by the hands inclined to the diseased side; homo lateral hemi paresis and hemi anesthesia, optic neuritis, slowness of the pulse, slow cerebation shown by the intellect, trophic disturbances, etc. One symptom, the deviation conjugée, is very important and when considered with the others is almost positive. It is found in the later stages of somnolence. The deviation conjugée is the result of nystagmus with the cortical impulses held in abeyance; on lifting the eyelids the balls are seen drawn over to the side of slow movement. The stuporous condition of the patient suppresses the quick voluntary movement, while the irritation from the labyrinth tract continuing to send impulses for the slow movement draws the eyes over to the side of slow movement. The deviation conjugée may be seen in any case of spontaneous labyrinthine nystagmus when the patient is under narcosis, the anesthetic suppressing the cortical impulses with the same result.

Contrasting the labyrinthine symptoms of cerebellar abscess with those of labyrinth suppuration and with cerebellar abscess following a labyrinth suppuration.

#### Labyrinth Suppuration (Stage of Destruction)

Vertigo	Intense at onset but diminishing.
Hearing	Negative.
Nystagmus	Rotary to the well side but diminishing.
Equilibrium disturbances	Marked early, diminishing, reaction falling type.
Caloric reaction	Negative.
Headache	Diffuse over affected side when present.

#### Cerebellar Abscess

#### Abscess Following Labyrinth Suppuration.

Less intense but progressive.	History of intense attacks getting better and then reappearing with increasing intensity.
Positive. Apt to be horizontal with long excursions; more likely to affected side, increasing in intensity.	Negative. Early of first type followed by second.
Less marked early, progressive. Weakness of diseased side causes falling to that side.	Same as abscess.
Positive. Circumscribed occipital or frontal.	Negative. Same as abscess.

Among the diseases which may affect the eighth nerve in its course from the labyrinth through the membranes of the brain to the brain proper are tumors, gumma, basal meningitis, extra-dural abscess, tubercular infiltrates and neuritis. As the seventh nerve, coursing along by the side of the eighth, will very probably be affected at the same time, the coincidence of labyrinth symptoms, combined with facial paresis or paralysis, without an otitis media present,

will point to a lesion at this part of the tract. With the exception of neuritis, we have general symptoms in all these conditions to aid us in a diagnosis. A *neuritis of the eighth nerve* might cause confusion, particularly if there should happen to be an otitis media existing at the same time. The following points will be of service in reaching a conclusion as to the cause. We will not consider a neuritis affecting only the cochlear division as it would hardly be mistaken for labyrinth suppuration.

#### Labyrinth Suppuration. (Destructive Stage).

History	One of middle ear suppuration.
Tinnitus	Negative.
Deafness	Absolute.
Herpes	None.
Vertigo	Intense at first but improving after a week.
Equilibrium disturbances	Present.
Spontaneous nystagmus	To well side.
Caloric reaction	Negative.
Galvanic irritability	Present.
	No other cranial nerves involved excepting the seventh rarely.
	One ear affected.
	Permanent loss of function.

#### Neuritis of the 8th Nerve.

No history of ear suppuration the rule. History of an infectious disease, or poisoning by tobacco, alcohol, quinin, salicylates, lead, or exposure to damp cold.

Positive if cochlear branch is involved, which is usually the case.

Usually partial—absolute if the entire nerve is involved.

May be found on drum, auricle or in the canal.

Intense and lasting longer than in labyrinth suppuration.

Present.

To well side.

Negative.

Absent.

Coincident neuritis of other cranial nerves very likely.

Often bilateral.

Recovery probable.

Of the diseases of the end organ itself we must consider peri-labyrinthitis, erosions or fistulae of the labyrinth wall, circumscribed irritative lesions, diffuse irritative lesions, circumscribed destructive lesions and diffuse destructive lesions of the membranous labyrinth.

*Peri-labyrinthitis* is an inflammation extending into the peri-labyrinthine bone cells surrounding the labyrinth capsule, from the middle ear suppuration. It occurs in cases of low resistance such as are found in diabetes and in tubercular ears. It leads to partial

or complete sequestration of the bony labyrinth. The secondary dangers of intra cranial complications are not so great as in labyrinth suppuration with the exception of eventual tubercular meningitis in the tubercular cases. The signs are much like those of labyrinth irritation, but the following points may be of service in distinguishing them:

Labyrinth Suppuration.	Peri-Labyrinthitis.
More often secondary to chronic otitis media.	More often secondary to acute otitis.
Onset of labyrinth symptoms sudden.	Onset gradual.
Facial palsy exceptional, and when present has no direct connection with labyrinth suppuration.	Facial palsy nearly always present as seventh nerve passes through the peri-labyrinthine cells.
Necrotic bone not always present.	Necrotic bone in all advanced cases.
No constitutional disease.	Associated with diabetes and tuberculosis.
Weber goes to well ear.	Weber often lateralized in affected ear.

(To be concluded in December.)

#### PROCEEDINGS OF THE SAN FRANCISCO COUNTY MEDICAL SOCIETY.

During the month of September the following meetings were held:

##### Medical Section, Tuesday Evening, Sept. 5th.

1—Case Demonstrations.

(a) Polycystic Kidneys.

(b) Dislocation of Atlas on Axis due to Lues.

René Bine.

2—Newer Aspects of Protein Metabolism. Prof. R. E. Swain. Discussed by Drs. Schmoll, Power and Swain.

3—The Life of Radium and Its Therapeutics, with demonstrations. E. O. Jellinek.

##### Regular Meeting, Tuesday Evening, Sept. 12th.

1—Clinical use of Psychotherapy; Illustrated by Cases from Private Practice. Carl Renz, M. D.

2—Therapeutic Value of Psychotherapy. Geo. H. Richardson.

General discussion by Drs. Power, Rosenstirn, Welty, McClenahan, Horn, Pfeiffer, Vecki, Watkins, Bine, Renz.

##### Surgical Section, Tuesday Evening, Sept. 19th.

1—Case of Anthrax Pustules. J. C. Newton.

2—(a) Resection of Shoulder Joint for Tuberculosis.

(b) Left Sided Colon.

(c) Carcinoma of the Pylorus.

(d) Excision of Vocal Cord for Epithelioma.

(e) Compound Pott's Fracture and Dorsal Dislocation of Great Toe. Emmet Rixford.

3—Operative Treatment of Fractures. T. W. Huntington. Discussed by Drs. Rixford and Huntington.

4—Case demonstration. Stanley Stillman. Discussed by Drs. Hyman and Stillman.

5—(a) Exophthalmic Goiter.

(b) Ovarian Cyst with Twisted Pedicle and Fibroid of Uterus.

(c) Lymphadenitis.



6—Epithelioma of Ear. S. J. Gardner.

7—Fractured Clavicle. Sterling Bunnell.

8—Demonstration of Screw for Treatment of Fractures. James T. Watkins.

#### Eye, Ear, Nose and Throat Section, Tuesday, Sept. 26, 1911.

1—Demonstration of a Case of Synchronic Scintillans. Victor F. Lucchetti.

2—(a) Report of a Case of Lockjaw Caused by Spasm of the Internal Pterygoid.

(b) Report of a Case of Acute Mercury Poisoning with Necrosis of Superior Maxillary and an Acute Otitis Media. Adolph Baer.

3—Tuberculosis of the Uveal Tract. Edgar W. Alexander.

4—On the Paralysis of the Abducens of Otic Origin. Victor F. Lucchetti.

#### Section on Medicine, Sept. 5th, 1911.

Case Demonstrations by René Bine.

(a) Polycystic Kidneys.

(b) Dislocation of Atlas on Axis Due to Lues. (This case report is published in full elsewhere in this issue.)

#### Polycystic Kidneys.

I am greatly indebted to my good friend, Dr. Isnardi, who has not only given me the privilege of examining this patient with him, but who has consented to my demonstrating him to this audience.

Polycystic kidneys in the adult are not common. Their pathogenesis is quite obscure. Every writer on diseases of the kidneys devotes pages to its discussion, whether he has ever seen or studied a case or not. The condition may go on for years without giving rise to symptoms. In the terminal, uremic stage, the diagnosis is simple. In intermittent stages the diagnosis is almost obvious, if many cases resemble this one, as is claimed by most writers.

Mr. C. F., age 38, contractor, complained of colicky pain in the abdomen, present to some degree for perhaps twenty years, but much worse for the last two years. Bowels constive. The only other points elicited in the history, after careful questioning, were that there were frequent nose bleeds for years, but for six months none had occurred. In particular, the patient had none other of those symptoms described by Dieulafoy as "petits signes du brightisme."

Examination of the patient showed practically normal chest; blood pressure was normal. Blood, 72%; Hg., 3,500,000 R. B. C.; 10,000 W. B. C.; 62 polys; 3 L. M.; 35 S. L.; O. E. Some poikilocytosis. No plasmodia. Wassermann negative.

The urine examined but once after prolonged palpation, contained a marked trace of albumin. Microscopic examination of the sediment showed many red blood cells.

The abdomen is most interesting and those desirous of examining the patient will note that there are large, firm, reniform masses in the flanks, that can be grasped bimanually as well as ballotted, and their position and mobility leave no doubt that they are enlarged kidneys. Furthermore careful palpation reveals numerous nodules on their surface, which seem less firm than other parts of the mass.

Of further interest will be noted the large liver descending fully one inch in the midclavicular line, but here no nodules are felt. And most interesting of all, very careful examination will note that the splenic edge is just palpable below the costal margin. It is hard to separate from the upper pole of the large left kidney, and for that reason I at first missed it.

Whether the patient has a Banti's disease as a complication is a point to be decided at a later date, as I am seeing the patient to-night only for the third time.

#### Clinical Use of Psychotherapy Illustrated by Cases From Private Practice.\*

By CARL RENZ, M. D., San Francisco.

The purpose of this paper is to discuss briefly the nature of psychotherapy, to illustrate its use from personal clinical experience and to give a hint of its value in the work of the general practitioner. I shall, therefore, not give any historical data nor dwell to any great extent upon its psychological aspect, although the latter is a *sine qua non* for the understanding of the phenomena.

Suggestion is of course the integral part of all methods of psychotherapy. Most physicians use suggestion in the treatment of their patients; some do it deliberately, others unconsciously. Hypnotism constitutes but one method of psychotherapy. The increased suggestibility to hetero-suggestion is the fundamental characteristic of the state of hypnosis. As to whether suggestions should be given in the hypnotic or in the wake state, I prefer the hypnotic state as giving better results; and I fully agree with Dr. Bonjour of Lausanne, who said in a recent article in the *Revue Suisse de Médecine*: "Je ne doute pas que ceux qui rechercheront l'hypnose profonde obtiendront des résultats plus excellents et plus durables que ceux qui se contentent d'hypnoses légères ou simplement de la suggestion directe ou indirecte."

With regard to the technique for inducing a hypnotic state, most psychotherapists in course of time work out one of their own, or, at any rate, modify or combine known procedures. In fact, one can hardly adhere to one technique with all patients, or to one technique with the same patient all the time. Personally, I use verbal suggestion without any special apparatus. However, I have seen Bérillon use a tuning fork, and in difficult cases he injects three or four deci milligrams of scopolamin, which he calls "Un véritable médicament psychologique." Farez uses blue light and v. Schrenk-Notzing and others use chloral hydrate in cases which prove refractory to simple verbal suggestion.

About thirty years ago Charcot, at the Salpêtrière, pronounced hypnotism to be a typical hysterical symptom, and he based his opinion upon the fact that all symptoms of hysteria can be elicited in hypnosis. But because we observe hypnotic states in pathological conditions, it does not follow that hypnosis is to be classed with the pathological states when the suggestibility is not abnormal. The Nancy school is opposed to Charcot's view, and the majority of investigators to-day share Bernheim's opinion. Hypnosis is a physiological condition of the nervous system and not a pathological one.

Hypnosis can be induced in almost all normal persons. Of course, the degree of susceptibility varies very much. Gerrish says: "The hardest-headed of us can be reached by a sufficiently frequent and skillful repetition of a suggestion." Many of the most susceptible persons are a priori convinced that they are immune to the influence of suggestion. It is commonly believed that it is easier to hypnotize a person of a low degree of intelligence or weak will power than one of a high degree of intelligence or strong will power. This is an error, for no such relation exists. The truth is that the co-operation of the subject is necessary. He must possess a certain ability to concentrate his attention. If the subject resists hypnosis, particularly during the first attempts, it will be very difficult, if not impossible, to influence that person. Lack of power of concentration is one of the most frequent causes of refractiveness to suggestion. Young children are

\* Read before the San Francisco County Medical Society, September 12, 1911.

difficult to hypnotize; at least, this has been my experience as opposed to that of some others. Nor are cases of developed insanity amenable to suggestion. The explanation is that the co-operation of the subject is necessary, and for this reason he must possess a certain degree of self-control and power of concentration.

It has been claimed that in the normal sleep state suggestibility is increased. This does not seem to me to be the case. When suggestions which have been given during what is apparently normal sleep are realized, I believe that the subject has been aroused into that unstable, semidormant condition which Sidis terms the hypnoidal or subwaking state and which is intermediary between the wake state on the one hand and sleep on the other, or between the wake state on the one hand and hypnosis on the other. In this intermediary or hypnoidal condition the subject is to a high degree amenable to suggestion. I may add that in this state the patient is not unconscious and retains a memory of all that has happened, but the critical faculties are weakened for the time being. Sidis and Moll contend that sleep and hypnosis are not identical, while Bernheim and Forel hold that they are. I agree with the former.

As to whether psychotherapeutic effort should be directed toward so-called functional diseases only, or also toward organic diseases, I am firmly convinced that there cannot be any functional change without structural alterations. We are justified, however, in using the term functional disease in the sense of a disease of which the anatomical substratum has not as yet been discovered. In this connection it is to be noticed that the degree of the morphological deviation from the normal and the degree of the functional disturbance are not commensurate. Experience alone will teach us which diseases are amenable to psychotherapeutic influence. It is my opinion that in making a careful examination of the individual case it is possible to one who has had sufficient experience to determine, with a fair degree of certainty, whether the patient is amenable to suggestion and likely to be benefited, irrespective of the distinction usually drawn between functional and organic diseases. I believe this the more firmly because I have frequently been surprised to see remarkably favorable results in cases in which, a priori, an amelioration of the condition seemed improbable. I would therefore recommend a trial with hypnosis in doubtful cases, as hypnotism in competent hands is absolutely harmless. In addition to the use of psychotherapy in treating neuroses, psycho-neuroses and vasomotoric disturbances, and in regulating intestinal troubles and many other conditions, I recommend its employment in the inhibition of vicious instincts and of automatic habits of children and also in the development of normal qualities which have remained at a standstill.

One has to avoid schematism. There are no definite rules to be followed. It is necessary to consider each case by itself. A readjustment or complete change in the course of the psychotherapeutic treatment has to be made according to exigencies as they arise. Most of the cases I have treated have been ambulatory; comparatively few have required a combination with rest cure. I make it a rule to use psychotherapy only after the patient has undergone a thorough physical and mental examination for the purpose of ascertaining whether the case is one appropriate for the employment of psychotherapy. Then an exact anamnesis and psycho-analysis are necessary. This requires much time and patience. As long as the patient conceals any secrets, the psychic treatment is of little or no avail; and it is therefore important to counteract any intentional or involuntary effort on the part of the patient to conceal anything.

The psycho-analytic method owes its development to the studies of Breuer, Freud and Jung. Psychoses and neuroses are caused, according to their explanation,

by emotions which, for some reason or other, have not run their course and have therefore not been properly discharged. They have been suppressed into the unconscious, and, although often unknown to the wake state memory, they affect the mental condition of the subject. This method consists in recalling these forgotten emotional complexes and thus enabling the patient to synthesize them with his conscious state. When the dissociated experiences are reproduced, the patient, instead of suppressing, is able to control the complexes and liberates himself from their bondage. The term "complex" denotes a group of mental processes which relate to experiences connected with a strong "feeling tone," generally of a painful character.

Freud and his school have elaborated on suppressed sexual emotions as the origin of all psycho-neuroses. He says: "The pathogenic complexes in the psycho-neuroses are always of a sexual nature and whenever the affective process concerned is traced to its origin, this is invariably found to be a sexual one." I do not believe that this is altogether in accord with general experience, although I realize that Freud's conception of sexuality has a broader meaning than ordinarily understood and includes other emotions such as jealousy, for example, which belong to the same category, or, at any rate, are coordinated to the emotion of love.

The "word association method" of Jung is another method of great value in elucidating the cause and origin of pathological conditions. He has demonstrated that the existence of complexes in which a strong feeling is involved can be discovered by means of association experiments. The patient is asked to express rapidly the first word entering his mind in answer to a series of test words called out to him, the time elapsing between the given word and the one called forth (the so-called reaction time) being measured by a stop-watch. By the length of time necessary to bring on the reaction and by the kind of words called forth, a clue is often given, which, when followed up, throws light upon the morbid condition. When the stimulus-word arouses a complex of ideas which have a strong "feeling-tone," the reaction time will be prolonged.

As to any possible danger from psychotherapy, there is none except as the result of an improper technique. Among the innumerable cases which have been treated by competent men there has never, to my knowledge, been any accident. Wetterstrand alone has used hypnotism over sixty thousand times. I myself have used it fourteen thousand to fifteen thousand times, and in that experience I have never noticed any untoward symptoms during or following the treatment. However, laws prohibiting public exhibitions of hypnotism for amusement and entertainment ought to be enacted, as has been done in Germany and in Russia.

Just a word about Christian Science. As a system of therapeutics (strangely enough, from the Christian Science point of view it is not a system of therapeutics at all), it is of course absolutely unscientific; but phenomena do take place in its practice which, here and there, must be called cures. Its practitioners apply it to all diseases (or "errors," as they term diseases) without any inquiry whatsoever, scientific or otherwise, as to whether the case is one to which suggestive therapeutics should be applied; so that when a cure is really effected, which does happen, it is by the merest accident. On the other hand, most of its dangers are obvious. But I would point out one, at least, of the dangers which is not so obvious, and it is this: By the method of suggestion employed (unintentionally, of course), in Christian Science it can happen that some important symptom (as a headache, for instance), can be removed, and this very symptom thus hidden may be the very one to indicate a grave organic lesion. Physicians as a class are more to blame than any other class for the acceptance of Christian Science by so many thousands of people; for physicians



should long ago have recognized psychotherapy as a very important branch of medicine. Therefore, a theoretical and practical course in psychotherapy ought and will, in my opinion, very soon form a part of the curriculum of the medical student.

I shall now illustrate the subject by a few cases selected from my records.

The following case of insomnia is a paradigm of many others which have come under my observation:

Young man of good education. Family and personal history unimportant. Always more or less introspective and self-centered. Physically in best condition. About two years ago he had a period of sleeplessness of several weeks, which finally yielded to medication. This period of insomnia did not apparently make any impression on him, but another period of wakefulness came on and worried him considerably. He noticed that whenever he had one wakeful night he could not sleep the next night without taking veronal. Psycho-analysis elicited the fact that he had heard and read about cases of insomnia becoming insane and that he was afraid of this happening in his case. The auto-suggestion formed a habit of not sleeping and his insomnia was a consequence of the emotional state of fear. He was obsessed with this fear. He had experienced bad nights and he anticipated that the coming night would be like the previous ones. He kept thinking of the possible danger, with the result that he failed to sleep in spite of his trying. Simple explanation and persuasion in the wake state were not sufficient to ameliorate the condition; but in the hypnoidal state it promptly yielded and he was cured.

The following case of insomnia is not based on a psychic state of fear, like the preceding case, but on some organic sensation forming the habit of awakening at a certain time each night and remaining awake, especially at times when the patient was physically and mentally in a poor condition.

School teacher, single, troubled with wakefulness for years. She would wake between 2 and 3 a. m., but would go to sleep again. Later, especially under great stress and worry of school work and family differences, she became unable to go to sleep again and suffered greatly under the condition. Suggestion that she would not awake any more until it was time to get up was of no avail.

Finally repeated inquiries into the possible cause of her awakening revealed the fact that it was the desire to urinate which awoke her. The urine was normal, so were the urethra, bladder and sex organs. It was an auto-suggestion, a habit formed probably after the period when there was, in fact, an objective cause for awakening.

Having ascertained this I changed the suggestion and explained to her in the hypnoidal state that there was no organic condition which necessitated micturition during the night, that she simply had formed a habit, and that her trouble was purely psychogenic. After a few treatments, instead of awakening between 2 and 3 a. m., she awoke between 4 and 5 and finally regularly at 6 o'clock, the stipulated time. She has improved greatly since.

In a number of other patients in whom more or less severe wakefulness was only one of many symptoms complained of, the insomnia yielded when the other symptoms were ameliorated by suggestion.

The following cases illustrate the value of psychotherapy in alcoholism:

Married man of 44. Intelligent. In responsible position. Mother alcoholic. Tuberculosis in family. Drank periodically all his life. About every two months he would go on a spree lasting several weeks, during which he concealed his whereabouts. He was generally found and taken home by friends. He was never sober longer than three months. Was at different times in sanatoria for liquor cures.

I first saw him at the end of a debauch into which he had launched three days after being dismissed

"cured" from a sanatorium. I induced a deep hypnotic state and treated him ambulatory for a few weeks, at first daily, then at longer intervals. For one year and a half he did not touch liquor and had no craving for it. During my absence from the city he had an attack of influenza and was treated by another physician, whom he warned not to prescribe any medicine containing alcohol. Unfortunately, he was given picon amère, which brought on at once a craving which led to a prolonged spree. At this time I was in New York, and his family communicated with me. I telegraphed that he should, at a certain hour of a certain day, lie down in a darkened room and have an attendant with him, that he would within ten minutes go to sleep and awake exactly after forty-five minutes, that after this the craving would be gone. This is called "suggestion à échéance," and is simply a variety of post-hypnotic phenomena. The result was, as I expected, a good one. Since that time, one year and a half ago, he has been well.

Married woman of 28; family history not important. First menses at 13, always painful. Was advised to take gin to ameliorate the pains. At first the liquor was taken only during the catamenia, later more frequently and in larger doses to produce sleep. For four years she drank one half liter of gin a day and other liquors besides. She had a decided craving. Different treatments were tried, pledges were taken, daily reports to the priest were made, all of no avail. The longest period during which she was not under the influence of liquor was three days. Two days before I was consulted she had taken one-half liter of gin and one liter of sherry. She complained of insomnia and headache. She has a slight systolic murmur over tricuspidalis; uterus in dextra-position, strongly antelected; left parametrium normal; right ovary enlarged and sensitive to the touch; passes 4000 cc. of normal light colored urine of low specific gravity.

I treated her (ambulatory) in deep hypnosis. First the craving was eliminated and it has not reappeared in ten months. Later, I suggested sleep, appetite and painless menstruation with good results, reserving local treatment for a future date. She gained ten pound in two months and is decidedly improved. First I treated her daily, then at longer intervals, and now she is supposed to see me once a month.

The next case is probably one of hysteria with gastric disturbances as the most prominent symptoms.

Physician's wife; age 35; two para; weight 150 pounds when well; began to complain of gastric pains after eating. She was treated for ulcer ventriculi, placed on a diet, and had a long rest cure. Then she was sent on a voyage. All without avail. later she was curetted and then castrated, without benefit. Carcinoma of the stomach was suspected. She could retain only ice cold milk. When her husband finally decided to try, as a last resort, psychotherapy, she weighed 80 pounds. She was susceptible to hypnosis and responded at once to the treatment. She gained 72 pounds in six months, and has remained well since then. That was fourteen years ago.

The following is a case of Singultus Gastricus Nervosus (hiccough):

Unmarried woman about 40. At the time I saw her she had been under treatment for hiccough for several months. The patient vomited, she was emaciated, and the singultus was almost continuous. Subcutaneous injections of morphin gave but little relief. Epigastrium extremely sensitive. A physical examination including a stomach analysis was at that time negative and a diagnosis of a neurotic condition of the stomach was made. I do not know whether there had been originally a physical cause for the trouble, or whether the patient, after the process had subsided, had simply retained the habit of singultus. At any rate the patient, who was very

suggestible, was relieved at once and cured shortly after.

The following case of stage fright is interesting for the reason that it demonstrates the value of the psycho-analytical method of Freud; on the other hand, it also demonstrates that, although there was a sexual trauma, the pathological condition was not caused by it but by another subconscious complex.

Married woman of 27, in perfect physical condition. Was accustomed to sing in public from childhood without any morbid fears until the age of 14, when, while singing at church, she was suddenly seized by a phobia. Whenever she tried thereafter to appear in public, it was under a great strain of self-consciousness and fear. When she had an engagement to sing, she would wake up in the night with palpitation of the heart, worrying about the singing. She concluded to give up her career rather than bear these tormenting states of fear. I determined to resort to psychoanalytical investigation during hypnosis to ascertain, if possible, the cause of her deficiency. She related that she had had a sexual trauma at about the same time when her trouble began, but as the synthesis of this incident did not, to my surprise, ameliorate the condition, I was naturally disappointed, as I was at that time strongly influenced by the Freudian doctrine. I made another psycho-analysis in the hypnotic state, as follows:

"Q. You say that you never had any trouble in singing until you were 14 years old?"

"A. No, I never had until that time at church."

"Q. How was that? Try to think and to recollect everything pertaining to that time."

"A. Yes, I sang in church, I was about 14 years old. . . . Here she became very restless; her respiration was heavy and labored, and the expression of her face showed signs of fear and horror, and she said: "Oh! that horrible face! Oh, I am so frightened!"

"Q. Why, what is the matter with the face?"

"A. It's a woman's face full of scars."

I then told her that this face was probably disfigured by burns, and that, instead of arousing fear and horror, the poor woman deserved her sympathy. I explained to her that this incident produced an emotional shock at that time, that she now realizes the mistake and thoroughly understands the circumstances, and that she would now, after awakening, remember them in her wake state and be entirely free from embarrassment and self-consciousness. The recovery was complete.

This was a case of a well-defined, organized and systematized complex lying dormant for many years. She had forgotten the scene, or at any rate had dissociated the incident from its pathogenic connection. It had a disastrous effect upon the patient until brought forth to the surface of consciousness by means of psycho-analysis in the hypnotic state. The patient in her wake state had not been cognizant of the incident, and this complex did not assimilate with the stream of her consciousness and therefore could not be resorbed, and it persisted as an entity, foreign and irritating to her consciousness.

The following case of Psychasthenia consulted me for constipation, dull pressure in head and lack of power of concentration:

Man 40 years old, single. No mental or nervous diseases in family. Was a teacher of Latin and Greek languages and was possessed of literary talent. Appetite and sleep good; complained of constipation, although having one-two evacuations daily. Never indulged in alcohol or tobacco. Sexually totally abstemious. Considers himself impotent and has for this reason not married. Admits libido and erections as well as natural emissions twice a month on an average. Had never spoken on sexual matters, even to his physicians. Has no headache but complains of a dull, heavy pressure in his head and lack of power of concentration. He is irritable and very

sensitive to noises; has many phobias, particularly claustrophobia; also has manifold obsessive ideas; cannot urinate in presence of others; is very timid and bashful in spite of his athletic appearance. He is fully convinced that all of his peculiarities and troubles, particularly the sexual impotence which he imagines, is solely due to the imperfect evacuation of his intestines. For this reason he has lived for twenty years on a self-prescribed diet and has strictly avoided milk, potatoes, dark bread, cheese and fruit, believing that these foodstuffs were contraindicated in his case. His physical status is as follows: Height, 6 feet 2 inches; weight, 176 pounds; eyes unsteady; bearing awkward and timid; tongue coated, foetor ex ore; all organs perfectly normal, including the genitals.

He could not be convinced by plain logic that he was at fault in regard to his mode of living, his diet, etc. Explanations, persuasion, and all forms of psychotherapy had been tried before without avail. I used hypnosis with very happy results and in six weeks the patient gained 16½ pounds. He has daily satisfactory movements of his bowels; his head feels free, and he is able to work with concentration.

In taking the anamnesis I had difficulty in approaching sexual matters and it was only with great reluctance that he gave any information in relation to his vita sexualis. This had never been tried before, as he told me, and I attribute at least a part of the benefit he derived to the candid discussion of this important matter, which had been consciously or unconsciously repressed so long.

In conclusion, I would say that the limits of this paper prevent my presenting numerous other cases in which equally good results were obtained. On the other hand, I could also relate many cases in which the results have been disappointing. Psychotherapy is not a panacea.

#### Discussion.

Dr. H. D'Arcy Power, San Francisco: Some twenty years ago when the work of Charcot was in full swing, I was living near one of his assistants, Dr. André, so had a pretty close view of hypnotism and saw a great many cases. I think as Dr. Renz said that there is absolutely no danger or any great difficulties connected with this work except to the physician. He is the one most in danger because where you have a sprinkling of successes in hypnotism there are ten failures to every success, and there are but few men who can afford to have these failures. On the other hand, at times there will be success when nothing else in the world has been of value. For example, I had a case in one of the London hospitals of the most pronounced tetany. The patient had been having five or six spasms a day. For three years she had had the benefit of the best neurologic talent and had become a show case. At my request the patient was hypnotized, and it was suggested that the muscular contraction would and had disappeared, and this resulted in complete relaxation of the muscles; the hypnosis was repeated in twenty-four hours and the period prolonged; it was put off again for forty-eight hours, then a week, then a month, when it was suggested to the patient that she would have no more attacks, and, in fact, she was cured with the exception of one attack which she had at a later period. This case was very susceptible to hypnotic suggestion, and when I left I put directions for her care in the hands of my successor in case she should have a spell and there would not be any one to take care of her in the right way. I told him how I hypnotized her, so he could give her assistance if necessary. Six or seven months later a letter from him stated that the other day the patient had sent for him in a drug store where he found her in a spasm, that he had put her through the hocus pocus I had shown him and that since then she has had no more attacks.

Dr. Julius Rosenstirn, San Francisco: If I might say a word, I would sound a note of warning that



this enthusiasm for psychotherapeutics should not extend too far and lead its disciples to discredit other branches of our science. One of the readers to-night quoted from a paper of a well-known local physician a caution to surgeons that many of their operations were necessarily done on patients whose diseases might be very easily remedied by hypnosis. I might mention many cases were I so inclined where valuable time was lost in trying to remedy with psychotherapeutic and similar measures, pathological conditions like exploded appendices, malignant bone diseases, and others which call for surgical aid, and were in all instances justified by operation. I only wish, though, to draw the attention of the devotees of this branch of medicine, which is a very excellent, useful and interesting branch, not to make the usual mistake of fanatic neophytes in condemning everything else and trying to apply their method to all cases to which their attention is called.

Dr. H. C. McClenahan, San Francisco: The subject of psychotherapy is such an extensive one and permits of such varied fields of discussion that I feel a hesitancy to approach it. I did not hear all of Dr. Renz's paper so am not in a position to discuss it in detail; however, the subject is an inviting and interesting one to me. It strikes me that the question is being rather departmentally dealt with to-night, being confined especially to the field of hypnotism. I think the subject of psychotherapy is especially interesting from the evolutionary standpoint. The question has occupied the stage of modern medicine more or less sporadically for the past twenty-five or thirty years, beginning with the time of the subconscious and unconscious and its reflections on the conscious mind, as promulgated by the French school, principally under the direction of Charcot, Nancy and Magnin. They offered hypnotism as a remedial agent, but we recognize its limitations and failures to produce the results that its former advocates held out to us. Next should possibly come the fatigue or exhaustion theory advocated by Beard, and based upon this was conceived and planned the rest cure of Mitchell, which fails to entirely meet the requirements in many cases. Though in modified form it is still one of our most potent agents for good, next should probably come the so-called imaginary or suggestion idea or auto-suggestion, based upon which Paul Dubois promulgated his rational suggestion treatment. This has secured excellent results in many cases, too. I might next, though blushing, mention that vagary referred to to-night, Christian Science, only to say that it was conceived in superficiality, nurtured in ignorance, and applied with stupidity of hypocrisy. Next probably would come the recent agitating phase of this question known as the Emmanuel Movement advanced by one Rev. Mr. Worcester of Massachusetts, a sort of medico-clerical co-operative aid association or double-barreled method in which a physician looked after the physical, while the mental was attended to by a minister. Rather excellent in its conception but short-sighted in its application, as it entailed a divided responsibility, thus sacrificing in a great measure confidence, which is such an essential factor. And lastly we must call attention to the psycho-analysis of Freud, whose sexual traumas, buried complexes, suppressions and displacements are given the etiological role—and there uncovered, replaced and relieved by having a patient recall them by linking of events and giving verbal expression to his thoughts as they stray uncontrolled back to the times when possibly the boy fondled his privates, or the girl accidentally witnessed her father's genitals in the bathtub. Some of his enthusiastic adherents attribute a sexual relation in the nursing of a baby boy at the mother's breast, and that the thumb-sucking habit of a nervous child is a form of masturbation. To what are we to attribute all these different views of etiology and different and contradictory ideas of treatment?

Most certainly, to my mind, just the same as we do in other disorders whose etiology and pathology are not understood—or when understood we are powerless to correct or repair the defect. And this takes us squarely back to the ancient conception of the two life propositions, viz.: physical, somatic or internal, and the mental objective or external—or to put it in another way, the organism itself and the environment of the organism with their action, interaction and reactions one upon the other and vice versa. And now we are confronted with what to my mind is the keynote to the entire situation, and that is correct diagnosis, following which the treatment is applied just as in any other disorder, i. e., to the relief of the causative factor. In diagnosis we must first ascertain the condition of the organism itself. Secondly, we must determine the ability of that organism to cope with its environment. The first needs no further mention. The second must take into consideration the personal equation and necessitates discrimination and valuation of environmental factors. When we realize that most of these disturbances are the result of the ineffectual efforts of an hereditary or acquired unstable nervous organization to cope with its environment; to correctly estimate and value conditions and surroundings; to appreciate reactions and attitudes, then and not till then do I believe we are in a position to attempt the application of remedial or corrective agents, be they hypnotism, suggestion, rational suggestion, catharsis, psycho-analysis or any other form of psychotherapy.

Professor Pfeiffer of Halle, Germany: On account of my knowledge of the language it was rather difficult to follow these papers and discussions. I was very interested to hear that Dr. Renz and Dr. Richardson have obtained such good results by using Freud's method of hypnotism. I have had no experience along these lines. I am especially interested in mental diseases and organic nervous diseases. In Germany we treat our functional nervous diseases not by hypnotism. Some years ago hypnotism was much more common in the German universities and it is certain that hypnotism has many dangers. Dr. Nonne used hypnotism formerly, but in most German universities neither hypnotism nor suggestion is used. As Freud's method has not been used at all in the German universities. Last year in Berlin at a meeting of the Neurological Society I heard this question discussed and for the most part this method was refused because it was considered dangerous.

Dr. Victor Vecki, San Francisco: I have tried hypnotism a number of times, but I have never succeeded in hypnotizing anybody. About thirty years ago I witnessed Urbantschich of Vienna hypnotize several hysterical subjects whom he had brought to a meeting of the Polyclinic, and I have seen the former assistant of Bamberger in Vienna, Dr. Kanders, hypnotize many subjects. I have tried to do this very often. I have bought all kinds of apparatus, things that whirl around before the eyes of the patient, but I never succeeded. I have been advocating suggestion in the waking state for many years, and with sexual neurasthenics you cannot get along unless you use suggestion. The last case I tried to hypnotize was an old Spanish lady who was really hysterical, and so I thought she was a fine subject. I got her to come to the office and made up my mind that I would get along without any of the apparatus and would just use my eyes. I began to stare at her, she glared at me, and soon I felt as if I were going to be hypnotized, and then I quit.

Dr. Jas. T. Watkins, San Francisco: I should like to ask Dr. Renz what has been his experience with suggestion in attempting the abolition of sensation for surgical purposes. My first observation of methods of suggestion had been in 1892 when I saw my professor of neurology, M. Allen Starr, hypnotize a girl who had apparently a perfectly

awful limp. Dr. Starr hypnotized her before the class, and at his suggestion she immediately strutted around like a drum major. Manifestly her limp was a mental affair. In 1906 I was house surgeon to St. Francis Hospital, New York, and assistant to Dr. Geo. M. Edebohl. One of our patients who needed an operation could not take an anesthetic because of the presence of a double heart lesion. Dr. Edebohl remarked that she was a proper case for hypnotism and asked if any one of us assistants could induce it. I said I would, so I went to see Dr. Starr and borrowed from him Hektor's translation of Bernheim's book. I read this and then practiced his technic upon some of the ward patients. I recall that I was uniformly successful in producing hypnotic sleep. I remember doing it with one woman who had had a double amputation of the breast, and a man with a tuberculous hip joint. While he was asleep I could move his leg every way without distressing him. I hypnotized Dr. Edebohl's patient once or twice prior to the operation. Then under hypnosis, a curettage, an amputation of the cervix and Alexander's shortening of the round ligaments were performed. Upon coming out of the hypnotic state she complained of no particular discomfort. As it has no direct bearing upon orthopedic surgery, I have not occupied myself with psycho-therapy of late years.

Dr. René Bine, San Francisco: I wish to ask Dr. Renz one question. I understood him to say that he did not use suggestion during sleep, am I correct?

Dr. Carl Renz, San Francisco: In answer to Dr. Bine's question as to whether suggestion can be given during natural sleep, I refer to what I said in my paper.

Dr. Watkins asks for information in regard to the value of hypnosis as an anesthetic in capital operations. I never had the opportunity of trying it in capital operations, but have had good results in curettages and also in dental work. The literature enumerates many capital operations performed under hypnosis. An English surgeon, James Esdaile, in the middle of the last century made 261 capital operations under hypnosis with only 5½% deaths, and this in pre-aseptic times.

It has been mentioned to-night that hypnosis can be employed to affect the circulation. It certainly can and there is no doubt as to its possible influence upon the vasomotoric center. Local anaemia and hyperaemia through suggestion have been frequently demonstrated; menses have been postponed or brought on sooner ad libitum; menorrhagiae have been checked, etc.

In answer to the remarks of Dr. Pfeiffer, I want to say that although it is possibly true that the German universities do not take an active part in psycho-therapy, nevertheless, some of the best work done in this line is done in Germany, Austria and Switzerland by university professors, and the books written by them are among the best.

The question of possible danger I have discussed. In regard to the assumption that patients lose their independence and rely entirely upon the physician, I claim that this is not the case if one uses the proper technic, and by proper technic in this connection I mean the careful avoidance of any untoward post-hypnotic auto—or hetero—suggestions, by positively affirming to the patient that there will be no feeling of dependence upon the physician, and that furthermore the will power will be strengthened, the self-confidence increased, etc. I make it a rule to suggest emphatically, before awakening the patient, that there will be no headache nor dizziness, that the patient will feel well and cheerful and that, whatever degree of suggestibility the patient may attain during my treatment, he cannot be influenced by anybody else without his own consent.

The matter of failures has come up this evening. Of course I have had failures and disappointments, but what other branch of therapy can boast of de-

sired results in all cases? I emphasized in my paper that psychotherapy is not a panacea.

Dr. Worcester's name has been mentioned rather disparagingly to-night. I want to say that he and his co-workers deserve credit for what they have done. The Emmanuel movement has done a great deal of good, and was, moreover, instrumental in calling the attention of the medical profession to psychotherapy. I do not want to be misunderstood, however, as I do not believe that a minister of the gospel is eo ipso a psychotherapist, unless he be a competent physician. My reason for this is that many suggestions given pertain to the regulation of physiological functions, such as circulation, nutrition, secretion, excretion, digestion, etc., which certainly are only understood by the physician. Furthermore, during the psychotherapeutic treatment of the patient, unforeseen changes in conditions may occur which require medical judgment.

### Section on Surgery, Sept. 19, 1911. Presentation of Cases.\*

By EMMET RIXFORD, M. D., San Francisco.

**Resection of Shoulder Joint.** Dr. Rixford presented photographs of a patient eight years after resection of both shoulder joints for tuberculosis. Both operations were done through anterior incisions and the head of the bone was completely removed in each instance. On the left side active flexion was little short of normal so that patient could without assistance lift the left arm high above the head. The right arm could be extended to within about 10° of the horizontal. Passively both shoulders could be extended almost to the normal degree.

**Left-Sided Colon.** Dr. Rixford described a case of failure of the primary gut to rotate, as found on the operating table. Operation was performed for volvulus of the cecum occurring several days after removal of a large uterine myoma. Obstructive symptoms were not complete so that operation was delayed. When finally the abdomen was reopened, the cecum was found to have been so damaged as to require removal. In attempting to unite the small bowel to the ascending colon no loop of large bowel could be found in the usual site of the ascending colon. This area was filled with the small intestine; ascending colon lay in the pelvis and rose on the left side of the small intestine toward the splenic flexure. A number of such cases have been reported in the literature but invariably found at autopsy. The condition is probably more common than statistics based on autopsy findings would indicate because the condition is not in any way incompatible with life. The condition may be readily understood if one considers that the duodenum progresses into the small intestine without passing beneath the colon; it therefore is exposed throughout its whole extent. This anomaly has been explained on the hypothesis of adhesions of the cecum or the more movable parts of the large gut low down in the abdomen, such adhesions being possibly the result of a fatal peritonitis. In some cases such adhesions have been demonstrated. In the present instance no such adhesions were found at the time of the myomectomy. Such adhesions would have the effect of preventing ascent of the large bowel by which it crosses over the duodenum, to become attached to the posterior peritoneum over the right kidney. The accompanying photographs are taken from the thesis of Stieda illustrating this condition as found in the dissecting room.

**Carcinoma of the Pylorus.** Dr. Rixford then presented a patient, age 78, whose pylorus he had excised for carcinoma in Feb., 1905. The case was presented as an example of the more favorable prognosis in carcinoma of the pylorus in those cases in which obstructive symptoms occur early. In this

\* Presented before the Section on Surgery of the San Francisco County Medical Society, Sept. 19th, 1911.



case there was complete pyloric obstruction at a time when the regional lymph glands showed no metastases. The patient was in extremis, consequently posterior gastro-enterostomy was performed with the Murphy button, the intention being to relieve the obstruction for purposes of nutrition. When the gastro-enterostomy had been completed, however, the patient being no more depressed than when the operation began, she having absorbed large quantities of salt solution, pylorotomy was performed, cut ends of the stomach and duodenum being invaginated with three rows of silk sutures. Microscopical diagnosis by Dr. Ophuls showed carcinoma limited to the pylorus, no metastases in regional lymph glands. Patient rapidly recovered and ever since has been in excellent health. Dr. Rixford said that examinations of the gastric juice before operation showed the presence of free hydrochloric acid in nearly normal amount.

**Excision of Vocal Cord for Epithelioma.** Dr. Rixford presented a case in which the tumor was a fungating epithelioma occurring from the anterior half of the vocal cord; it had caused almost complete aphonia; it was removed by splitting the larynx in the middle line with the head hanging over the head of the table. Exposure was excellent and the tumor was lifted bluntly from its bed, taking nearly the whole of the right vocal cord and cellular tissues about it. The wound was then cauterized with the thermo cautery, by which all bleeding was stopped. Wound was then closed; the hyoid membrane sutured as well as the perichondrium of the larynx, but the superficial wound was drained in order to furnish free exit for infectious discharges. There was very little reaction and patient made a rapid recovery. For some weeks patient could blow air through the drainage opening but this finally closed. Patient's voice has been gradually improving until now he can be heard across a fairly large room. Of course the left vocal cord is performing most of the function of phonation.

**Compound Pott's Fracture and Dorsal Dislocation of Great Toe.** Dr. Rixford exhibited a young man, police officer, who in collision with an automobile two years ago received a compound Pott's fracture, all of the ligamentous structures on the inner side of the joint being torn, and the tibia ground into the dirt of the road, and the tibio-fibular ligaments widely torn. He also sustained dorsal dislocation of the great toe of the other foot, Colles' fracture at one wrist and fracture of the lower end of the ulna at the other. The lateral and capsular ligaments were sutured and the foot fixed in plaster of paris, joint drained. Prophylactic dose of antitetanic serum was administered. Primary union occurred with the result as exhibited; after two years there is no lack of stability in the ankle, no widening but flexion is limited to a right angle, while extension is normal. Reduction of the dorsal dislocation of the great toe was effected only by means of open operation. Stimson's suggestion of cutting the capsule subcutaneously by means of a tenotomy did not release the phalanx although everything between the skin and the metacarpal bone was cut on the dorsal and inner side. On opening the joint the head of the metacarpal was found to protrude between the abductor of the great toe and the inner head of the flexor brevis muscle; the flexor brevis and longus with both sesamoid bones were thrown up into a vertical position on the outer, that is the fibular side of the first metacarpal. Reduction was effected only when the flexor tendons with the sesamoid bones were lifted off the enlarged end of the metacarpal by a blunt instrument used as a lever. Reduction was then immediately effected. Primary union occurred with a perfectly movable joint but with some defect in abduction of the great toe leading to a mild degree of hallux valgus. This case is important in relation to the difficulties of reduction of the dorsal dislocation of the great toe and thumb. All text books state that the resistance to reduction is caused by a flap of the capsule of the joint slip-

ping over the head of the metatarsal or metacarpal to be relieved by pushing the hyperextended phalangeal downwards parallel to the direction of the metatarsal. In this case this manoeuvre utterly failed as did also subcutaneous section of the capsule.

Dr. Sterling Bunnell presented a man who five weeks previously had been rolled between a car and a wall, injuring ribs and the pelvic and shoulder girdles. There had been a comminuted fracture of the left humerus above the insertion of the deltoid muscle which could not be reduced satisfactorily by conservative methods as the pectoral, coracobrachialis and deltoid muscles each pulled a separate fragment of bone. An open operation was done and the fragments were brought together with a wire and a staple into their original alignment as shown by the X-ray plate and normal appearance of the arm. On the other side the man's clavicle was dislocated from his acromial process and could be seen projecting upward beneath the skin. This rather unusual dislocation prevented the arm from rising above the horizontal and caused pain in lifting vertically with the arm. These dislocations uniformly become worse if not treated by the open method. A similar dislocation was operated upon by Dr. Bunnell with good result. Wire was used and afterwards removed as it caused some pain in this movable joint. Kangaroo tendon is to be preferred and will be used on this man.

#### Section on Surgery, Sept. 19, 1911.

By H. B. A. KUGLER, M. D., San Francisco.

Mrs. Miller, 47 years of age. Widow. One child, lives in Newman, California. She came to me in 1901 with symptoms of exophthalmic goitre of one year's standing. Having just returned from Europe where I heard Rehn's paper on "One Hundred and Thirty-Five Collected Cases Treated by Operation," reported at the meeting of the Deut. Naturf. Aertze in Munich, and also heard the critical discussion, I put her on the then usual treatment of inunctions with red oxid of mercury ointment and bromides and belladonna internally.

A year later she returned with the symptoms aggravated and I removed the right lobe of the thyroid. Her condition was materially improved as shown particularly in her letters which were in German script, the lines becoming steadier with each letter. The subjective symptoms also improved.

On July 25, 1911, she returned, stating that for the past two years she had been more nervous than formerly and that her heart was more rapid. She had pneumonia one year ago. Two months previous to her visit her legs became greatly swollen and she still had some edema. The heart was very rapid, running from 140 to 150, with a reduplication of the second sound. She was put on tincture digitalis 10 drops, tincture belladonna 5 drops every 4 hours.

On July 27th, she returned somewhat improved, pulse still 120 but the reduplication was gone.

The improvement was not permanent and on the 15th of August I ligated the superior pole of the left lobe under Schleich, making a transverse incision. She stood the operation very well. The next morning her pulse was 90. That afternoon she had a chill and by 4:30 her temperature was 104.2. Thinking that it was more the result of an acute hyperthyroidism, and remembering Forchheimer's treatment for exophthalmic goitre as mentioned in Ochsner's work on the thyroid, I gave her gr. 5 bromide of quinin suspended in syrup of yerba santa.

The next morning her temperature was normal, but as a precaution I gave her another dose on the 17th and one on the afternoon of the 18th, but the temperature remained normal. Her pulse ran between 80 and 90 while in the hospital and she went home in 2 weeks.

On the 5th of September she was very much improved, but thinking to hasten the improvement

I put her on the bromide of quinin gr. 5 three times a day in pill form.

Specimen Presented. Mrs. Stevenson. 54 years of age. Widow. Two daughters. Husband died when she had been married only 4 years and she has worked very hard all her life to support herself and children. Some years ago she was told in Iowa that she had a fibroid of the uterus. A similar diagnosis was made in San Francisco.

On the 28th of August, while lifting a mattress, she felt a pain in her right iliac region. She had occasional spells during the day, and at three o'clock in the morning of the 29th was taken with a very severe pain and vomiting which continued. I saw her in the afternoon. There was marked tenderness in the lower abdomen, a palpable tumor exquisitely tender; still nauseated; no bowel movement; no temperature. She was removed to St. Mary's Hospital with a provisional diagnosis of a fibroid with a twisted pedicle.

Aug. 30th, operation: Before the peritoneum was opened, a dark mass was seen which on palpation fluctuated and the diagnosis was changed to strangulated ovarian cyst. There was some dark, free blood in the peritoneum; the cyst was lifted out entire; an intra-mural fibroid was found in the uterus, and as on palpation a polyp had been felt projecting from the cervix, a complete hysterectomy was performed.

Patient was up on the 10th day and left the hospital on the 14th day.

On splitting the uterus its cavity was found to be filled by a polyp whose pedicle was attached to the fundus.

Mr. G. U. Patrick. Was seen by me in consultation with Dr. R. J. Nicholls on July 29, 1911. Patient is 38 years of age; a miner; married; no children. His father was killed in a mine at the age of 42. His mother died at the age of 22 in confinement. No brothers or sisters. The only sickness he remembers before the present trouble was ptomaine poisoning from shrimp salad in January, 1910. He was very sick for one night and had bowel disturbance until July, 1910.

His present trouble started in December, 1910. He never had a diarrhea, never had dysentery or typhoid fever. Severe pains and constipation began in March, 1911. He complained that riding in a buggy or a car brought on attacks of pain in the right side. These lasted for an hour or two and then disappeared under massage. These attacks occasionally occurred without any exciting cause. He found that when these attacks were on a lump formed in the right iliac region, which disappeared on rubbing.

On examination this phenomenon was observed; a mass forming in the right iliac region, but also in the right hypochondriac following usually the disappearance of the former. He was sent to the German Hospital, the lower bowel inflated, and it was found that the abdominal cavity below and to the left of a line drawn from the tip of the left 8th rib to the right anterior superior spine of the ilium, became inflated and produced pain. From that we concluded that the transverse colon was attached somewhere in the right iliac region. Gastric analysis gave the results usually accompanying carcinoma of the stomach with the exception of the absence of blood. A series of X-ray pictures, taken after the ingestion of bismuth gruel, showed that there was an obstruction on the right side, where the bismuth was partly retained.

August 3d, operation: An incision was made in the outer border of the right rectus muscle; a small, hard mass was palpated, not very movable owing to adhesions passing across the transverse colon. These were liberated and the proximal end of the colon was so distended and thickened as to resemble the stomach. The appendix was very long and distended with fecal matter, evidently due to backward pressure. The mass in the transverse colon was resected; the two ends brought together with large Murphy button.

The lymphnodes attached to the mass were sent to Prof. Ophuls, who reported no tumor; diagnosis—catarrhal lymphadenitis. The piece of bowel was then submitted for examination and the report came carcinomatous ulcer of the colon.

Patient developed an ether pneumonia but responded promptly to a few hypodermics of digalen.

On the 9th day patient was up.

On the 11th day a Roentgen picture revealed the Murphy button still in situ, and the patient left the hospital.

On the 14th day patient came to the office complaining that his hemorrhoids bothered him. He was given some ointment and told to use cold applications. He returned the following day with the statement that there was an obstruction in the lower rectum. It proved to be the Murphy button, which required removal by forceps.

A letter from Dutch Flat, dated September 2nd, states that the patient is feeling splendidly, has gained 7 pounds, but still takes a little cascara every night for his bowels.

### Surgical Section, Sept. 19, 1911.

By JNO. C. NEWTON, M. D., San Francisco.

This is a case of external anthrax. We know that the anthrax bacillus is of special historical interest on account of its being the first micro organism proved definitely to have a specific etiological relationship to an infectious disease. More animals (cattle and sheep) succumb to anthrax than of any of the other diseases affecting them.

This patient came in from the country this afternoon, complaining of swelling and stiffness of his hand and arm and the three pustules seen on his thumb and finger.

The history begins three days ago. The patient is a milker and gives the information that he had assisted in the burying of several cows that had died from some unknown cause. There were slight abrasions on his hand and from these places the condition seen here rapidly developed. His temperature is 101, pulse 112. The carbuncular lesions are capped with characteristic bluish vesicles.

The anthrax bacilli has been demonstrated in smears made from the Sero Sanguineous contents of the vesicles. In the case I previously presented to the society in Sept., '09, which is reported in the State Journal of Jan., 1910, the diagnosis was verified by guinea pig inoculation. I will treat this condition by injecting 0.35 of pure carbolic acid into each pustule and follow this by mild germicidal applications. He is receiving 0.35 each of guaiacol and quinin sulphate internally.

A vaccine will be used if the condition does not yield to this treatment. The prognosis is bad in all forms (Ravcnel) and the mortality of external anthrax is variously given at from 5 to 25%. The pulmonary form (wool sorters' disease) is largely fatal.

### On the Paralysis of the Abducens of Otitic Origin.\*

By VICTOR F. LUCCHETTI, M. D., San Francisco.

At the last meeting of the Eye and Ear Section of the County Medical Society, an interesting case having a symptom complex known as Gradenigo's Syndrome was presented and discussed; and Dr. Welty, chairman of our section, requested me to make an extensive report on the above disease at this meeting. The condition is such a rare and interesting one to the specialist and profession at large from an anatomical and pathological standpoint, that I deemed it advisable to present in full the views of the author regarding this affection.

Prof. Gradenigo does not agree with Citelli that one should speak in a general way of Gradenigo's Syndrome; but rather of a well defined and pathological condition.

\* Read before the Eye, Ear, Nose and Throat Section of the San Francisco County Medical Society, Sept. 26th, 1911.



In the beginning, owing to a lack of sufficient data, he was rather skeptical regarding the interpretation of this particular condition. Now, he is of the firm opinion that with the quantity of material gathered, the syndrome first described by him in acute otitis, and more rarely in the chronic forms with acute exacerbation; the disease is propagated by infection from the middle ear to the cells at the apex; particularly the peri-tubular cells. In some cases, the process is limited to an osteitis of the apex of the temporal bone, with a lesion of the abducens. It may involve the Gasserian ganglion and the fifth nerve, or it may give rise to symptoms of pachi-meningitis. Fortunately, although very rare, the infection passes by this means to the pia-mater, giving rise to a serous or purulent circumscribed or diffuse lepto-meningitis.

He says, therefore, that those who maintain that it is always a simple osteitis and not a pachi-meningitis, or lepto-meningitis are wrong. It is essentially one and the same process which permits you to observe in single cases the different stages of the infection, from the stage of invasion confined to the osseous cells, to the stage of extension to the meninges. He is also of the opinion that those who maintain that it is a reflex phenomenon, as well as those that think that the paralysis of the sixth nerve is due to an infectious thrombosis, or simply a periphlebitis propagated from the petrosal sinuses to the cavernous sinuses are wrong.

He also says that nothing is more misleading for the correct interpretation of clinical facts than to put together haphazardly as some authors have done, all the cases of abducens paralysis which appear during a course of otitis.

We know very well that this symptom can be found in many different pathological conditions, especially in diffuse purulent lepto-meningitis, specific lesions of the cranial contents, in deep extra dural abscesses of the superior border of the pyramid (apex), in diffuse osteomyelitis of the temporal bone, etc. The syndrome as expounded by Gradenigo is clinically constituted by three essential symptoms.

1. Acute purulent otitis media (and in rare cases), chronic.

2. Intense and persistent pains mostly localized to the temporal region, and in the orbit of the same side as the otitis.

3. The appearance from fifteen to twenty days from the beginning of the otitis, sometimes sooner, sometimes later, of an isolated paralysis of the abducens on the same side as the ear lesion.

Notwithstanding the fact that this condition is often complicated by manifest symptoms of mastoiditis, optic neuritis, neuralgia of the fifth nerve, etc., these complications do not change the pathological view of the disease in question.

The prognosis is considered favorable in most cases, the paralysis disappearing with a retrogression of the otitis and operation on the mastoid which must be thorough. It is graver when optic neuritis is present, as it signifies a diffusion of the process in the meninges.

### Tuberculosis of the Uveal Tract, With Presentation of Case.\*

By EDGAR W. ALEXANDER, San Francisco.

Since Sidney Stephenson and George Carpenter asserted in 1901 that tubercle of the choroid may be found in any stage and any kind of tuberculosis, many ophthalmologists have corroborated their statements and offered clinical proof of their truth.

The class of lesions, however, to which these authors have particular reference are very different from those formally described as tubercular, in fact none of the recent text books refer to them as such, even Axenfeld in his latest book nor Groenouw, who edited the section on tuberculosis of the choroid in

the last edition of the Graefe-Saemisch Handbuch. It is on this account that I report to this section a case illustrative of this type which I have followed in the University of California Hospital, bearing in mind the recent literature on the subject.

A preliminary demonstration was made a few months ago when the eye was in an active state.

Tuberculosis of the choroid was formally considered to be associated only with grave lesions of the general system, such as disseminated miliary and meningeal tuberculosis, and to consist of the typical cellular formations with Langhan's giant cells, etc. On that account it was a rare disease and only those who had a service in a large general hospital had much of an opportunity of seeing it. However, with the introduction of modern methods of diagnosis, viz: Calmette, von Pirquet, Moro, subcutaneous tubercular reactions and Wassermann's test for syphilis we find that the percentage of recognized tubercular affections of the eye takes a big jump upwards and the diagnostic waste-baskets of congenital and syphilitic lesions are deprived of a large number of their contributions.

It is extremely difficult and often impossible to differentiate, without these tests, between terminal tubercular and syphilitic choroiditis as well as their active states, especially when we exclude the disseminated variety of the latter condition; and congenital lesions due to intra-uterine inflammation, and true colobomata are not always typical.

The text-books speak of a scattered solitary tubercle of the choroid, also the conglomerate variety, and mention is made in the literature of "obsolescent" tubercle occurring with clear mediae; but the type of which my case is a perfect example has an associated cyclitis or irido-cyclitis. A description of this case will be one for the type as reported in the literature.

As usual the patient is a healthy, intelligent child with no apparent manifestations of tuberculosis or syphilis. For a year and a half previous to his consultation the patient had noticed a gradual failure of vision of his right eye, without pain, redness or tenderness. He has always been a healthy child. His parents and family have also been free from tuberculosis or specific diseases and from their stigmata.

Examination: Conjunctiva clear; anterior chamber deeper than normal; abundant "mutton-fat" deposits on posterior surface of cornea; pupil slightly dilated and almost inactive to light; iris clear; tension slightly plus; vitreous cloudy with floating opacities large and small; fundus shows well defined irregular mass with fluffy appearance and dirty white color just above the macula and apparently behind the retinal vessels; considerable oedema of retina surrounding mass; disc ill defined.

Wassermann was negative.

The patient was admitted to the hospital for observation. A two-hourly temperature chart showed a slight afternoon rise. Physical examination was negative, except for posterior cervical glands on both sides, and diseased tonsils and adenoids. Moro and Pirquet reactions were strongly and characteristically positive.

The patient was put on ascending doses of tuberculin. The corneal precipitates disappeared very quickly but after the first injections the vitreous opacities seemed to increase so that the view of the fundus became very indistinct. This was the condition when I first showed him to the section. I have interpreted this as a local reaction to the tuberculin and an additional point to the diagnosis. The eye from that time on steadily improved and after two months was free from most of the opacities and oedema of the retina. I then removed his tonsils and adenoids. The injection of a glycerin extract of the macerated tonsils into a Guinea pig produced no tubercular lesions. The glands of the neck became much smaller after the tonsillectomy and the eye finally subsided to its present quiescent state with the typical choreo-retinal patch of atrophy surrounded by a ring of pigment.

\* Read before the Eye, Ear, Nose and Throat Section of the San Francisco County Medical Society, Sept. 26th, 1911.

This seems to me to be, as others have suggested, a toxic condition due to the absorption of soluble products from a tubercular focus in the neck and not the typical giant cells system. It has been compared to the tuberculides of the skin, lichen scrofulosorum, etc., and an analogy can easily be drawn to the so-called eczematosis conjunctivitis where tuberculosis is often present. These toxic inflammations and infiltrations of the eye are often contemporaneous to involvement of the cervical lymphatics and I have found that the primary cause often lies in diseased tonsils and adenoids. Undoubtedly in this case the cervical glands were kept constantly irritated by the chronic inflammation in the nose and throat and the tubercle bacilli found a favorable soil for growth.

Such an eye as I have shown may go on to phthisis bulbi or have a recurring choroiditis, where fresh patches appear as old ones atrophy.

The essential treatment is tuberculin and hygiene.

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#### Case of Acute Mercurial Poisoning Followed by General Necrosis of Maxillary Bones, and Purulent Otitis Media.\*

By M. HERZSTEIN, M. D., and AD. P. BAER, B. L., B. S., D. D. S., M. D.

On Dec. 3rd, Mrs. E., 28 years of age, drank a solution containing six 7½-grain HgCl<sub>2</sub> tablets. She vomited freely within five minutes and had her stomach washed at the end of 30 minutes and in the interim drank the whites of half a dozen eggs and two glasses of sweet oil. At the end of an hour she became unconscious and was removed to hospital. Urine voided by catheter for first time at the end of 62 hours. Unable to take nourishment except by rectum, as everything taken by mouth was immediately expelled by vomiting.

A diffuse papular rash appeared quite over the entire surface of the body at the end of 24 hours; heart dilated and sounds weak; pulse 140 to 160, weak, thready and low tension; liver enlarged about three fingers beneath free margin of the ribs; urine examination showed presence of albumin 0.3%, large quantity of pus, renal and vesicular epithelium and large number of hyalin, granular and epithelial casts. Her ankles, knees, hips and elbows became sore and stiff, and by Jan. 1st she had lost 35 pounds in weight.

By the second day her teeth had turned almost jet black in color and were extremely loose, while from the sockets there exuded a free discharge of foul smelling pus. Breath was intensely foul; the saliva fairly ran from her mouth in a stream. She could only open her mouth about ¼ of an inch and was unable to close it because of the extreme soreness of her mouth and teeth.

The entire oral mucous membrane, but especially that over the alveolar processes, was covered by a mass of large vesicles, which on bursting discharged a thick hemato-serous fluid. As the condition i. e. (mercurial stomatitis) progressed, small areas of necrosed bone were exposed and showed over the entire alveolar process, first appearing in the regions between the teeth themselves, and then spreading laterally in all directions. The teeth finally became so loose that during the first month twelve teeth, the lower right bicuspid and molars and the left bicuspid and first molar, and the upper right and left second bicuspid and first molar either dropped out, or were taken out by the patient herself through fear of swallowing them. The remaining teeth, although very loose at this time, subsequently tightened in their sockets and at the present time are firm and normal.

A large abscess mass formed externally on the left side beneath the bicuspid, and was opened and drained into the mouth. Coincident with the development of this condition in the mouth, there occurred an acute purulent otitis media, with an associated intense pain over the mastoid region and back up over the neck and head. The ear drum ruptured in the upper posterior quadrant and there was a free discharge of pus. There was complete loss of hearing on the left side.

By Jan. 15th the entire alveolar processes of the upper and lower jaws had necrosed and were completely denuded of gum tissue on their articulating surface.

Patient was operated on Feb. 1st and 18 sequestra were removed from the exposed alveolar process and from between the necks of the teeth which had not been lost. The three largest pieces removed measured 1¾, 1½ and ¾ inches in length. At this time the abscess mass beneath the left maxilla, having continued to increase in spite of being drained into the mouth, was opened externally upon the face and was drained daily by means of thorough and through irrigations and kept open by means of a rubber tube and gauze packs. With the exception of this one area, the mouth had entirely healed by Feb. 15th. This sinus continued to discharge about 1 dram of pus with each daily irrigation, being reduced to but a few drops at the end of two months, i. e. April 15th. At this time a large sequestrum was removed through the external face incision, and by May 1st the patient's mouth condition was entirely clean and healthy.

The condition in the ear was successfully treated by Dr. W. S. Franklin without operation. Discharge was entirely stopped and patient's hearing on the left side has been restored to about one-third normal.

By means of tonics and an outdoor life she has regained about 20 pounds in weight, but still suffers from extreme anemia, due to a very weak heart. She also has a chronic parenchymatous nephritis.

This case is simply an aggravated form of a condition which is seen in the mouth during the normal administration of mercury as it is given in the treatment of syphilis, or which we quite frequently see resulting from an overdose of calomel. The fact that mercury is to a very large extent excreted through the mucous membrane of the mouth probably accounts for the peculiar susceptibility of the oral tissues to overdoses of the drug. In ordinary salivation we get the beginning of a mercurial stomatitis and a mercurial necrosis of the alveolar processes which accounts for the gradual destruction of the bone around the teeth, with loosening of the teeth, and which, if allowed to continue, will ultimately result in the complete loss of the teeth owing to the complete softening of the alveolar processes supporting them. And the cementum of the teeth, which is typical bony tissue histologically, takes part in the same destructive process and hastens the tendency toward tooth exfoliation. There are a great many cases on record in which this condition has occurred, but I am unable to find any case in which

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such extensive destruction as took place in the present case has been reported.

The unique character of the present case is perhaps due to the fact that these patients usually die, and it is only by the rarest good fortune that this patient's recovery, owing to prompt medical attention and to her own remarkable vitality and resistance, has enabled us to witness and to treat the interesting condition which we are able to report in this paper.

### "Lockjaw" Caused by Spasm of the Internal Pterygoid Muscle.\*

By AD. B. BAER, B. L., B. S., M. D., D. D. S., Special Lecturer on the Medical and Surgical Diseases of the Mouth, Face and Jaws, University of California Dental Department.

About the middle of August, 1910, Mr. J. B., 22 years of age, was kicked on the right side of the face by a horse. Associated with extreme pain, there resulted a gradual difficulty in swallowing and progressively increasing difficulty in the movements of the lower jaw until complete locking occurred at the end of about a week. Two X-ray pictures were taken at the time and were interpreted as showing a fracture about the middle of the ramus of the maxilla on the right side. There was a complete over-bite of the upper front teeth, the lower front teeth being completely hidden behind the uppers. The bicuspid and molars were in apparent correct occlusion. It was this condition of the front teeth which first drew attention to the fact of a possible fracture, the patient claiming that previous to his injury the front teeth had been in edge to edge occlusion.

A plaster cast was applied and kept in position for six weeks. During its application patient complained of constant pain, difficulty in swallowing and intermittent desire to hawk and spit. Cast was removed at the end of six weeks, with no apparent change in patient's condition. Jaws were still locked, but there were intervals when he was able to open his mouth about one-half inch.

Another X-ray picture was taken at this time with same diagnosis, same treatment and the same result. Patient consulted several different surgeons and specialists in an effort to get relief, and after a lapse of nine months he was practically in the same condition as when he started. At the end of nine months he was given his choice of going through the rest of his life with his jaws almost locked, or of submitting to an open operation, which would necessitate the cutting of his right facial nerve with a resulting paralysis of the right side of the face, gradual loss of muscular tone and atrophy, dribbling of the saliva from the right corner of the mouth and pulling of the face over to the left side. He chose the first of the two alternatives until his nagging pain again caused him to seek relief and he was sent to me May 28th of this year.

Preliminary examination disclosed this very important fact: That his teeth were in perfect occlusion, the apparent over-bite of the upper front teeth being a perfectly normal condition. (Normal occlusion of the teeth may always be accurately determined as follows: the upper first bicuspid tooth should come down between and articulate with the two lower bicuspid; and the anterior buccal cusp of the first upper molar tooth should fall into the groove or sulcus which lies between the two buccal cusps of the first lower molar tooth.) Given this normal articulation of the teeth, we can practically always eliminate the possibility of displacement due to fracture in the anterior or posterior parts of the body of the maxilla. And a most painstaking and forcible digital examination failed to show any apparent fracture of the maxilla in this case. We were able to verify this conclusion by means of an X-ray picture taken by Dr. Painter. We were perfectly sure of our X-ray reading, but to make assurance

doubly sure, inasmuch as practically every man who had seen the patient had made a diagnosis of fracture high up on the ramus, a second picture was taken, with a film placed inside the mouth and held against the internal surface of the ramus, for there is necessarily considerable overshadowing of the ramus of the jaw by the other bones of the head and especially by the first and second cervical vertebra. But by means of this film picture we were able to get the anterior half of the ramus clear to the coronoid process and were able to absolutely eliminate all possibility of a fracture. And there not only was no fracture, but there was no other pathological condition of the maxilla to account for patient's symptoms.

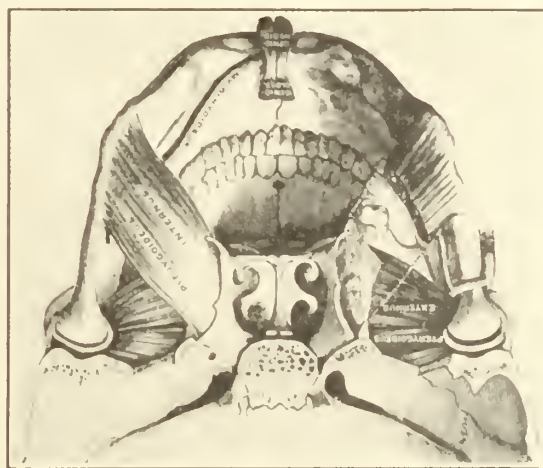


Plate showing internal pterygoid muscle, seen from behind. (After Testut.)

Having determined what was not the cause of patient's condition, we set about to determine what was the cause, if possible. We had four signs or symptoms to go by. 1st, the jaws were locked. 2nd, there was a dull, steady pain in the glenoid cavity at the point of articulation. 3rd, there were intervals when it was possible for patient to open his mouth from  $\frac{1}{2}$  to  $\frac{3}{4}$  of an inch, and 4th, there was an intermittent desire to hawk and gag and spit. The diagnosis was finally made in the following way: By a careful digital examination, the most painful point was found to be up under the angle of the maxilla on the internal surface and not at the articulation as the patient supposed. From the angle of the jaw the pain decreased on pressure as we ascended toward the condyle. We then cocainized the throat and getting the base of the tongue well down and out of the way, an intensely red, inflamed area showed on the right side over the area of insertion of the internal pterygoid muscle, and there was a very definite inward bulging of the muscle at this point. This inward bulging was made perfectly evident by comparing the two sides. Pressure upon this area by means of a long applicator caused the patient to shriek with pain which was so intense that he lost complete control of himself. At the end of a few minutes he quieted down, and the intense pain was followed by an almost complete absence of pain. He was now able to open his mouth about  $\frac{3}{4}$  of an inch and on further examination a thin stream of thick whitish gray pus was seen trickling down into the throat from the posterior inferior margin of the ramus of the jaw. Diagnosis of a slow chronic abscess in the sheath of the internal pterygoid muscle at its point of intersection into the lower end of the ramus of the maxilla, was made. The X-ray picture completely eliminated the possibility of there being any associated bone involvement and we were able to give patient and his friends a positive opinion on the question of prognosis.

Patient was sent to hospital and even under ether

\* Read before the Eye, Ear, Nose and Throat Section of the San Francisco County Medical Society, Sept. 26, 1911.

it took some time to force the jaws apart owing to the long tonic contraction of the masseter, temporal and pterygoid muscles, which had resulted from their long disuse. With the mouth wide open a very definite fluctuating mass could be felt beneath the inflamed, bulging area. An incision about one inch in length was made along the anterior margin of the internal pterygoid muscle and about a dram of a thick, creamy pus was evacuated. The abscess sac was curetted and swabbed with Churchill tincture of iodine. The upper half of the insertion of the muscle was cut away from its attachment to the bone in order to weaken the contractile power of the muscle itself. Patient's pain gradually disappeared, and by constantly forcing the jaws apart by normal muscular action, assisted at times by having patient use his hands to produce more forcible expansion, the entire condition cleared up and had returned to normal at the end of about 12 days.

The "lockjaw" had been a case of simple muscular spasm of the internal pterygoid. (There is a straight perpendicular pull from the inferior maxilla by the internal pterygoid muscle, from its origin in the pterygoid fossa above, to its insertion into the inner surface of the ramus below, which is not quite clearly shown in the illustration.) The muscle had been gradually put upon a stretch by the slow accumulation of pus between the muscle and the bone, and as the jaws became locked mechanically, the condition was accentuated by disuse and consequent muscular spasm of the three remaining muscles of mastication. The fact that the patient at times had a desire to hawk and spit and at such times that he was able to open his mouth for a short distance was due to the rupturing of the abscess at some point and to a consequent discharge of some of its contents. The condition was probably caused in some way by his injury which had set up an inflammatory condition in the sheath of the muscle and which in the course of time became purulent.

Patient was seen again on July 5th and September 8th. There was no recurrence, the entire mouth condition being normal.

## SOCIETY REPORTS

### COOPER COLLEGE SCIENCE CLUB.

A regular meeting of the Cooper College Science Club was held on Monday evening, Oct. 2, 1911. when the following program was given:

1. Presentation of Surgical Cases. Dr. A. L. Fisher. Discussed by Drs. Winterberg and Fisher.
2. Presentation of Cases. Dr. H. H. Yerington. Discussed by Drs. Wilbur, Winterberg, Alvarez, Clark, Eloesser and Oliver.
3. Presentation of a Case of Rheumatoid Arthritis, with demonstration of X-ray Plates. Dr. H. R. Oliver. Discussed by Drs. McClenchon, Luttrell and Oliver.

At the close of the program refreshments were served.

### CALIFORNIA ACADEMY OF MEDICINE.

The regular monthly meeting of the California Academy of Medicine was held in the library of the San Francisco County Medical Society on Monday evening, September 25, 1911, President Ebright in the chair. The scientific program was as follows:

1—Demonstration of Myopathies of Diverse Types. Langley Porter. Discussed by Drs. Watkins and Porter.

2—Is the Representation of Motor Function in the Cerebral Cortex Limited Topographically? An Experimental Inquiry. Sol Hyman. Discussed by Drs. Eloesser and Hyman.

3—Experimental Glandular Atrophy. Dudley Tait. Discussed by Drs. Ophuls, Eloesser and Tait.

Dr. Wilbur A. Sawyer was unanimously elected to membership.

At the close of the program refreshments were served.

## PURE FOOD ORDINANCE IN SAN DIEGO.

Through the efforts of the San Diego Board of Health, a Meat and Dairy Inspection ordinance has been passed by the City Council, requiring inspection of all slaughter houses and dairies in or near San Diego furnishing their products to this city, and prescribing arrangement of their plants. Ion W. Parks, M. D. V., has been appointed Chief Inspector; appointment of assistant inspectors is pending. Appointments are made by the Board of Health.

A certified dairy has been opened in Mission Valley and the city now has the purest of milk from this source.

B. J. O'NEILL, M. D., Secretary.

## CLINICAL CONGRESS OF SURGEONS OF NORTH AMERICA, SECOND ANNUAL MEETING, PHILADELPHIA, NOVEMBER 7 TO 16, 1911.

The program of the Congress includes clinics by the leading surgeons of Philadelphia in all the principal hospitals each day of the session from 8 a. m. to 5 p. m., and seven evening literary meetings at which eminent surgeons from other cities will read papers and take part in the discussions.

These programs, with detailed information as regards registration, appear in full in the October number of Surgery, Gynecology and Obstetrics, the official journal of the Congress, which can be obtained free by addressing Franklin H. Martin, M. D., General Secretary, whose address is given below.

Visiting surgeons will register at headquarters at The Bellevue-Stratford, where cards of admission to the clinics will be issued and a bulletin of the clinical features and literary sessions published daily.

Invitations will be issued to physicians who desire to attend the Philadelphia meeting and become members of the Clinical Congress if their names and addresses are sent to the General Secretary, Dr. Frank H. Martin, 1210 Columbus Memorial Building, Chicago, Illinois.

## BOOK REVIEWS

**The Practical Medical Series: Nervous and Mental Diseases.** Patrick Basso, 1910. Published by Year Book Pub. Company, Chicago, 1910.

No man has a right to be ignorant of the year's neurological literature when he can acquire for the merest stipend the amount of information which the book under review presents; nor can he make the plea that the volume of the literature is so vast, that time fails him to attack it, for here it is given in the most succinct form.

While essentially a compilation this volume of the Practical Medical Series is not the work of mere compilers. We commend it most heartily. L.

**A Working Manual of High Frequency Currents.**

By Noble M. Eberhart, A. M., M. S., M. D., Professor and head of the Department of Electrotherapy, Chicago College of Medicine and Surgery, etc. Chicago: New Medicine Publishing Co.: cloth; \$2.00.

This little volume treats the subject in a thorough manner, especially from a practical point of view.

For the busy physician who wishes to use High Frequency this book will prove useful, for it is not too extensive nor too technical.

A chapter is devoted to diseases, alphabetically arranged, telling the correct technique to be employed in each case. The author does not confine himself to High Frequency in treating certain diseases, but often suggests some other form of electrotherapy as being better suited for the amelioration of the trouble. His practical experience of ten years of daily use of these currents has enabled him to place before the profession an individual opinion. The book is written in good style and is well illustrated.

N. SELLING.



**Handbook of Suggestive Therapeutics.** By Henry S. Munro, M. D. 3rd Edition. Pub. by C. V. Mosby Co., St. Louis, 1911.

The third edition of the "Handbook of Suggestive Therapeutics" by Henry S. Munro is a considerable enlargement of the preceding editions. The fact that the two large editions have been exhausted, after less than two years, proves that it has met with the approval of the medical profession.

The method of psychotherapeutic procedures of Freud and Jung are described. The author advocates Jung's association method and gives due credit to Freud's psychology and to the unquestionable merits of his psychoanalysis, but he very strongly opposes his sexual psychoanalysis.

Munro recommends the universal application of psychotherapy as an adjunct to all classes of professional work and emphasizes the large scope of its application in the general practice of medicine.

The book is undoubtedly practical and useful, not being burdened with historical data or cumbersome theories. It contains only the most essential and most important psychological facts which are necessary for the understanding of the subject, and the reader does not require any special psychological training to follow the author.

The work is a short resumé of the present state of psychotherapy with strong subjective coloring. It is well adapted for use by the general practitioner. Those who speak disparagingly on the subject, although they have but little or no knowledge of this branch of therapy, will read Munro's Handbook with benefit.

C. R.

**A Manual of Personal Hygiene by American Authors.** Edited by Walter L. Pyle, A. M., M. D. (4th Edition.) Press of W. B. Saunders Company, Philadelphia.

"The object of this manual is to set forth plainly the best means of developing and maintaining physical and mental vigor." To this end the services of nine practitioners of medicine, each eminent in his specialty, have been enlisted. For this very reason, adequately to review the book would call for the services of an equal number of similarly expert reviewers. Failing this we will record our impression of the first chapter, leaving the quality of the remaining chapters to the imagination of those readers who have not the price of the book—\$1.50.

In the first fifty pages, Dr. C. G. Stockton, Professor of Medicine in the University of Buffalo, discusses the Hygiene of the digestive tract. The chapter is adequately illustrated. The author has been painstaking, and yet it seems to us that the subject matter is unevenly presented. For example, it leaves one with the feeling that if the reader spent the time on the care of his teeth which their proper attention would seem to demand, there would be none left to earn a living—let alone to heed the recommendations of the eight specialists yet to be heard from.

On the other hand, we were disappointed in what the author had to say of the values of foodstuffs and in his evidently empirical dietary. The whole article was essentially "conservative" in thought. Nowhere was there evidence that the "insurgent" views of Fletcher and his disciples as to the actual food requirements of the animal economy had been given serious consideration. In the light of a personal experience with both the usual way of "reducing" and with Fletcher's method, we regard this as a serious omission. Some time before the Fire, we noted that, as in the case of Mr. Tupman, "Time and feeding had expanded this once romantic form." In short, we were overweight. In this dilemma we placed ourselves in the hands of a colleague, of still greater weight and wisdom, who was reported to have reduced seventy odd pounds without ill effect,—in fact we could see none at all. Our colleague put us upon what was, we firmly believe, a scientifically conceived regimen. The only feature we recall was we had to weigh everything, and that it was appalling to note how much so little food weighed. In two weeks we had lost, if we

remember aright, some sixteen pounds; but at what a cost! Not only had we been compelled to abandon two professional papers on the verge of completion, but our practice had fallen off, our relations with professional friends were strained, we were scarcely upon speaking terms with our family. Being by nature one who would love his neighbor when possible,—we felt that the romantic form could be acquired only at too great a sacrifice and returned to three solid meals a day, two hundred and twenty pounds and the bosom of our family.

In the preceding summer Fletcher's book was brought to our notice and we were induced to make a personal test of its presentments. In a word, Fletcher proposes that we shall eat or drink what we like, but that we shall chew whatever is taken into the mouth until it has disappeared without a voluntary effort at swallowing on our part. In a test of this method, covering two months, we noted, first,—how little food it took to satisfy our appetite and that in the intervals of eating we were not incommoded by hunger nor weakness; secondly,—that we had an increasing desire for plain foods, and discovered in them a variety of agreeable flavors not theretofore noted, and that, thirdly, while we lost weight steadily and rapidly, we managed to keep our friends and our practice.

J. T. W.

**Clinical Symptomatology.** By Alois Pick and Adolph Hecht. Translated by K. K. Koessler, M. D. Published by D. Appleton & Co., N. Y. 1911.

In view of the small number of morbid processes in which there exists an effective specific therapy, "the physician is often obliged to select those symptoms from the total picture, which if successfully combated, will render the greatest benefit to the patient."

The authors therefore consider in more or less detail, every general and special symptom characteristic of each disease. Not only is symptomatology considered, but differential diagnosis, including detailed laboratory findings and treatment is discussed at some length.

As can be imagined, to properly cover such a field, a book would be encyclopaedic in size, and in an attempt to condense all this in less than 800 pages, there are necessarily many omissions.

From the standpoint of differential diagnosis, given one presenting symptom, this work does not afford as interesting reading as Cabot's "Differential Diagnosis," with its recital of case records. It certainly cannot replace our best text-books on practice of medicine. So that, while on the whole "Clinical Symptomatology" is an excellent compilation, we know of nobody to whom we can recommend its purchase for \$6 as filling one of their "long felt wants."

R. B.

**Diseases of the Stomach and Intestines.** By Boardman Reed, M. D. Third Edition. Published by E. B. Treat & Co., New York, 1911.

This is a book of over 1000 pages written by a man with ten lines of titles, etc. That it has reached the third edition shows that it has filled a want in the physician's library.

There are 83 lectures dealing with every phase of gastro-enterology and some things not closely related to the subject. For instance, three chapters and twenty pages are devoted to urinalysis; five pages to blood-counting; there is a chapter on dysentery, another on rectal diseases mainly surgical; another on intestinal parasites, and a discussion on arterio-sclerosis more suitable to a book on vascular diseases.

It would seem that in the course of three editions, the many repetitions might have been worked out and the whole boiled down to about 300 pages of concise information. Three hundred and seventy pages are taken up with a discussion of the methods used in diagnosis and treatment. As usual in such books, the discussion of gastric analysis leaves the reader with the idea that it is a complicated pro-

cedure which can be done only in a big laboratory and with many different indicators. This procedure might be more popular with the general practitioner if writers would conceal their erudition and show how simply the estimation can be made on one small specimen of stomach contents with only dimethyl-amidoazo-benzol and phenol-phthalein as indicators. Free HCl and the total acidity are the important things.

The 60 pages devoted to gastric and intestinal neuroses do little more than duplicate and confuse the descriptions of organic diseases described before. The treatment for all these is practically that advised for a case of gastric atony with general lack of tone and under-nutrition. The only apology for so many of these chapters seems to be that there are such terms as gastric hyperesthesia, enteralgia, gastro-intestinal neurasthenia, etc., in the vocabulary and each one of these names must have a disease attached to it or the work would not be complete. Here we not only find an article on gastric neurasthenia, but on page 962 we read that neurasthenia tends to derange the digestive functions, etc. Now, how are we to know when the patient is neurasthenic and when his intestines are neurasthenic? Under neuroses of the intestine, the author describes meteorism for the second time, but all unconscious of humor, enumerates as causes: 1. "A local obstruction, such as a twist, etc." Again, under neuroses of the stomach we find: "The commonest cause of this condition (pyloro-spasm) when it is not due to ulcer, is a hyperacidity of the stomach contents," which he might have added, may also be due to ulcer. Examples might be multiplied to show what a curse our nomenclature is to the book-writer and to the physician who is trying to identify the symptom-complex of the patient before him.

In his efforts to bring the book right up to date, the author has given considerable space to the glycyl-tryptophan reaction, the meiotagmin reaction, and the trypsin and Hodenpyl treatments for carcinoma, all of which were discredited shortly after their publication. After this ultra-modernity we are surprised to find in the article on gastric tetany no mention of the role that calcium and the parathyroids may play in such affections. The section on the physiology of digestion is very inadequate and apparently uninfluenced by the work of Pavlov, Bayliss and Starling, Cannon and the later workers.

When we note on page 102 that the way to take a Bismuth picture is to give a drachm 2-3 times a day for two days, we are not surprised that there is no mention of the work of the German radiologists on the size and position of the stomach in health and disease and in various positions. Their pictures of the living functioning stomach must slowly replace those of the flabby dilated organ seen at autopsy, and their methods will be used more and more by the diagnostician.

Reed is one of the few American authors who seems to fully realize the value of clapotement in mapping out the stomach and diagnosing atony and ptosis. He advocates, however, the use of the gyromele and gastro-diaphane, instruments which probably deserve their general desuetude. He wisely points out that too much confidence must not be placed in the results of a single test meal.

His system of progressive diets does not take into account the individuality necessary in diet prescribing. Many of his observations, however, are very sound. He warns against the danger of over-restricting diets in people already under weight.

He puts more faith in electric treatment than most of us do, and in reading his case reports, we are inclined to believe that his results are due more to his good dieting and general care than to faradization with the author's intra-gastric electrode and galvanism with the author's rectal electrode, etc. Spondylotherapy and some other new things

are enthusiastically received, but the corset is spoken of only as the root of all evil.

No mention is made in the article on gastric ulcer of those relatively frequent cases in which a diseased appendix, adhesions or some other hidden cause produces the symptom-complex of ulcer, even to severe hemorrhages, without any ulcer demonstrable at operation.

Under "Chronic Catarrh of the Intestines," the author gives a good description of mucous colitis as it is usually seen and advises an unirritating diet. Out of respect to the nomenclature, however, he describes practically the same symptom-complex again under the heading of "Mucous Colitis." Here, in deference to v. Noorden, he advocates the coarse diet. However, he adds that if there is any real enteritis present we had better keep to the mild diet with rest, over-feeding and oil enemas. He doesn't say, however, just how to tell when it is a neurosis and when it isn't. He has also noted that a coarse, irritating diet may even aggravate constipation in these cases and that is certainly increases the pain and flatulence. Poor old Paulus Aegineta and the score of Latin writers enumerated in the article on Colitis in "The Med. and Surg. Hist. of the War of the Rebellion" would stir in their graves if they could read that mucous colitis "was studied by American writers before it had attracted special attention abroad."

As is usually the case with books, we wish the author had been less generous with the ideas of his friends and co-workers, and had given us more out of his own rich clinical experience. Although much of the material included may be poorly chosen, the book is certainly a storehouse of information on the subject and would be especially valuable to the man at some distance from a library. W. C. A.

#### NEW MEMBERS.

Urban, Kurt, Petaluma.  
Miller, J. P., Sebastopol.  
Duncan, J. F., Exeter.  
Knowlton, J. J., Modesto.  
Whittington, W., Dinuba.  
Dungan, J. F., Exeter.  
Gundrum, F. F., Sacramento.  
Cross, Hugh, Penngrove.  
Miller, A. L., Marysville.  
Hund, Harry O., San Rafael.  
Miller, B. F., San Diego.  
Wells, S. J., Pleasanton.  
Adams, Jno. E., Oakland.  
Slaughter, K. J., Folsom, Cal.  
Cothran, W. F., Crows Landing.  
Tolman, G. P., Watsonville.  
Mallory, G. W., Santa Rosa.  
Milliken, Wm. P., Oakland.  
Revd, Wm. Robt., Oakland.  
Dupinct, L. R., Oakland.  
Buchanan, R. A., Lodi.

#### RESIGNED.

Reed, Boardman, Alhambra.  
Newkirk, Garrett, Pasadena.  
Van Dyke, E. C., San Francisco.  
Whiffen, R. A., San Jose.

#### DEATHS.

Brownell, Emily A. V., Hayward.  
Perry, J. B., San Lorenzo.  
Garwood, W. T. (address unknown).  
Cope, Wm. Henry, Pleasanton.  
Rofelty, G. W., Los Angeles.  
Jenison, M. G., Hollywood.  
Ferguson, T. H., Gridley.  
Cunningham, C. McD., San Francisco.  
Mills, J. M., Arcata.  
Hall, Joseph H., Los Angeles.  
Stanley, H. B., Tuolumne, Cal.  
Richards, Jas. Richard, San Diego (August licensee, 1911).  
Gibbons, Henry J., San Francisco.  
McIntyre, B., Lone Pine.  
Griffith, E. M., Los Angeles.



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## EDITORIAL NOTES.

It is unfortunate that there is such a prevailing opinion that salvarsan has displaced mercury, and that one injection of the new **SALVARSAN.** preparation will cure a large percentage of syphilitic infections. It is undoubtedly true that salvarsan may abort early lues, will usually clear up syphilitic eruptions quicker than mercury, works well where the latter drug fails, and is a specific in malignant syphilis. Nevertheless, it is seldom that one injection has the desired effect.

The complement fixation reaction has demonstrated that several injections are frequently necessary to make the reaction negative, and in some cases the reaction will not remain negative even after the use of both salvarsan and mercury. All the important clinics of Europe give a combined salvarsan and mercury treatment. In Vienna a popular course of treatment consists of two salvarsan injections, and two series of mercurial injections given during the year. A large clinic in Berlin gives three intravenous injections of salvarsan during the first two months. This is followed by a course of inunctions, or injections of salicylate of mercury.

The dangers of the drug are minimal, as the nervous complications are usually the result of the disease and not of the arsenic. Of course the contra-indications as outlined by Ehrlich should be observed.

It seems almost needless to state that salvarsan should be given intravenously and there is a tendency to decrease the dose originally recommended by Ehrlich. In preparing the solution, if sterile distilled water is used instead of salt solution, much difficulty is avoided.

H. M.

In spite of recent valuable additions to our knowledge of cancer the treatment remains virtually the same, radical removal of all surgically accessible growths. There is no present indication of change. So far therapeutic progress has been achieved mainly within the domain of surgery and has consisted of the development of technical methods all having a common end, complete removal.

As early extirpation, other things being equal, affords the greatest assurance of complete and therefore successful removal, it is not surprising that many earnest attempts should have been made to find a means of early diagnosis where clinical evidence is doubtful or absent. Certain investigations with this end in view have closely followed the lines suggested by recent developments in the study of the specific reactive properties of serum. On the premise that there is something in the metabolism of cancer inherently different from that of normal tissue, investigation of the blood of cancer patients promises to be fruitful.

Up to the present time research in this field, though vigorously and assiduously prosecuted in many centers, notably in Germany, has discovered nothing that can reliably fulfill the demands of specificity. In several recent numbers of the *Deutsche Medizinische Wochenschrift* (Nos. 27, 28, 29), Hirschfeld has given a very able review of this subject, with references. Cancer research has embraced the study of complement fixation, specific isolysins, heterolysins, cytolysins, precipitins, anaphylactic reactions in animals rendered susceptible and has also entered other fields of serum work. The meiostagmin reaction in the results obtained promises more than any of the methods enumerated. Its basis is the determination of the surface tension of liquids by means of a special instrument known as the Halagmometer. As applied to the study of cancer diagnosis there has been found quite constantly a change of surface tension, when a mixture of tumor extract and the serum of an animal affected with such tumor is subjected to a temperature of 37° C. for a few hours. The increased power of the blood of cancerous patients to inhibit tryptic digestion, measured as its antitryptic index, is present in a large percentage of cases, but not in all, and is further found to be associated with diseases other than cancer.

The activity in this field of research goes on unabated and it is well that it is so, for of all vital phenomena with which the physician deals cancer development is shrouded in greatest obscurity. Therefore added facts, however they may appear unrelated, fragmentary and of little importance at the present time, may yet prove to be important links in the solution of the cancer problem. If nothing else, they serve to keep alive interest and stimulate further investigation. It would be well if more of this work were taken up on the Pacific Coast. The technical procedures are not involved and can be carried on in any fairly equipped laboratory.

M. S.

In this, the heyday of laboratory methods, it is surprising that a procedure which has much to recommend it should have received so little attention

#### CLASSIFICATION OF LEUCOCYTES.

that the very name of its originator is known to but few. J. Arneth, working in Leube's clinic, in 1904, published a monograph taking for his thesis a new conception of the behavior of the leucocytes in infectious disease. Recognizing that a white count where the total number and the relative proportions were within normal limits might still occur in highly pathological conditions, he proposed an additional classification based upon the characteristics of the nucleus. He regarded the neutrophilic leucocytes alone, dividing them into five classes according to the number of their nuclei. He assumed that the younger the cell the fewer nuclei it contained; that as it aged the nucleus divided; and that the older the cell the greater the protective power it possessed. In infections and toxemias the older cells (cells with many nuclei), being more active in the defensive work, succumbed first and were replaced by younger generations (cells with fewer nuclei) and he concluded that the greater the number of older neutrophils the better protected the organism would be, and vice versa. He established a normal picture or formula, which appears to be fairly constant, and showed that in some infections, particularly tuberculosis, there was a marked change in this—an increase in the younger forms—and that this change varied directly with the improvement or retrogression of the case clinically. He further offered confirmation by results from animal experimentation.

Over seven years have passed since Arneth's first publication, and what has come of it? In Germany naturally he has received the most recognition and a moderate amount of literature has accumulated, some favorable and some not. The French have done but little, sporadic articles appearing now and then. In this country but few papers have been published, mainly encouraging. From the larger tuberculosis clinics the most important studies have come, those of the Klebs, Bushnell and Treuholtz, Williams, and Minor and Ringer being especially noteworthy. In one point they are all united—in the necessity for the reports of more observations.

The method may prove of great worth, particularly in prognosis. The technic is simple and not arduous, and the results so far appear encouraging. On the whole it merits more attention than has as yet been accorded it. Whether or not it is dependable, and especially whether it will enable us to anticipate clinical changes, are problems which can only be solved by careful and extensive observations. We of the West are in a position peculiarly favorable for the study of tuberculosis and we are neglecting both our opportunities and responsibilities if we do not lend some aid in establishing this newer measure upon a firm basis, should it so warrant.

L. H. B.

Pituitrin or Hypophysis extract is fast proving itself to be a drug that will eventually be found in

#### USE OF PITUITRIN IN OBSTETRICS.

the armamentarium of every obstetrician. As the result of the experiments of the physiological chemists we have been given a drug that is far safer and of more certain action than ergot and its preparations. The two most important effects of the drug are the contraction of the arteries, hence raising blood pressure, and physiological strengthening of the natural rhythmic contractions of the uterus. Its action on the arteries is not through the vasomotor system, but by directly affecting the muscular coat of the blood vessels, in contradistinction to the action of adrenalin which affects the vasomotor centers. The action on the uterus is to stimulate the individual muscle cells and to bring on contraction, as evidenced by labor pains.

As a result of its action it has been used with great success in cases of post partum hemorrhages due to atony of the uterine muscle, and such men as Foges, Hofstatter, Hofbauer, Neu, and Stern recommend it.

Klotz (Munch Med. Woch. 1911 lviii 1119) reviews the work of many observers regarding the action of pituitrin in raising abnormally low blood pressure. From his own observations and experiments on animals he has been very favorably impressed with the effects.

Bab (Munch Med. Woch. 1911 lviii 1554) has seen marked results in controlling hemorrhage in cases due to myoma, ovarian cysts, or inflammatory conditions of adnexa, when ergot, stypticin, and hydrastis have been used without result.

As the action of pituitrin on the uterus is similar in many respects to that of ergot, its use is, we believe, indicated in exactly the same conditions as that of ergot, namely, after the third stage of labor, while according to some of the European clinicians, it can be used in the first and second stages as well. They claim it starts labor pains and strengthens labor pains that are weak, but for this use the writer does not recommend it until clinical experience and animal experimentation prove it free from danger.

Schmid, Prag (Munch Med. Woch. 1911, lviii, 2230) says it is the best and most reliable of all known preparations for the treatment of post partum hemorrhage. It is similar in its action to ergot, but differs, in that it can be given without danger prior to the expulsion of the placenta. Moreover, it is the only sure and harmless therapeutic agent for mitigating labor pains, and as such can be given in many cases to advantage where heretofore we had to resort to the application of forceps and bags. As desirable results he observed quick separation of the placenta and conspicuous slight bleeding post partum. The only single untoward result was after pains in some cases, (25%).

Bab (Munch Med. Woch., August 22,) has given the drug with adrenalin in osteomalacia. Both the pituitary body and the adrenal glands are known to be antagonistic to the ovaries and according to Fehling and others there is superactivity of the ovaries in osteomalacia. The drug can be given by mouth or by the subcutaneous or



intramuscular route. The writer prefers to give it intramuscularly and uses the dose of the following preparations: One cc. Burrough, Wellcomb & Co., or two cc. of Parke, Davis & Co. preparation, sterilized in ampules ready for hypodermic use. There were no unpleasant after effects except painful contractions of the uterus, but by combining with scopalamine 0.0004 gm. or morphine 0.01 this can be overcome.

L. I. BREITSTEIN.

During a number of years Brill of New York has made a series of communications pertaining to an infectious disease of unknown origin and pathology, characterized by a short incubation period, (4-5 days), a period of continuous fever accompanied by intense headache, apathy and prostration, diffuse and extensive erythema and maculo-papular eruption; all of about two weeks duration. Whereupon the fever abruptly ceases either by crisis within a few hours, or by rapid lysis within three days, and all clinical symptoms disappear.

Last year he published a clinical study based upon 221 cases which he had observed during the past 14 years in the wards of the Mount Sinai hospital. These cases were taken by a number of New York physicians, for typhoid fever. But the failure of agglutinative reactions with the typhoid and allied organisms, as well as the failure to recover the organism in all cases from the circulating blood, distinctly showed the disease, in spite of its clinical resemblance to typhoid, to be etiologically, of a different nature.

The differentiation of Brill's symptom-complex from typhus fever, the resemblance to which Brill admits, has given rise to considerable discussion. He says, "I should have felt that I had offered nothing to our nosology if it had not been proved that typhus fever had lost its virulence, that it was constantly present in a community, that it was not communicable, that when it was present epidemics of it did not occur, and that it was no longer a grave and fatal disease. But," he adds, "with typhus fever as the great masters of medicine have taught and I have seen it, such a conception would be unjustifiable; therefore, I believe this disease not to be typhus fever."

More recently Friedman, (Archives of Internal Medicine, Oct., 1911), has again called our attention to the clinical characteristics of this disease, and from an analytical study, and comparison of them with the symptoms of mild typhus, he has reached the conclusion that Brill's disease is to be identified with typhus fever. In the absence of a bacteriological criterion it is obviously difficult to reach any definite conclusion, but further study of this symptom-complex is most necessary. For, if this condition should be definitely identified as typhus fever, a good many of our ideas and teachings regarding typhus would have to be considerably modified.

A. J. L.

Among a number of recent valuable articles on the subject of heart-disease none is more fundamental in nature or elucidative

#### MYOCARDIAL DEGENERATION.

in character than the contribution of Drs. Leo Loeb and Moyer S. Fleisher to the recent meeting of the A. M. A. These well-known experimenters, using the rabbit as a subject, induced an acute strain of the heart muscle by the intravenous injection of epinephrin and then followed the subsequent histological changes in that organ. They say: "Shortly after the injection slight interstitial oedema was found in the heart, and somewhat later the muscle fibres showed slight increase in size. Several days after the injection, the muscle fibres were distinctly increased in size and their nuclei were also larger; the connective tissue between the muscle fibres was also increased in quantity. In the next few days the changes became more pronounced. The separation of the muscle fibres due to oedema was now marked. In places we found degenerative changes in the muscle fibres; some of the fibres appear to have been dissolved, only a thin ring of muscle substance surrounding the nucleus; the striations were now indistinct in the fibres. About two weeks after the injection the changes had reached their maximum. The connective tissue increase was diffuse. The degenerative changes in the muscle proper had become more extensive. Besides a larger number of the muscle fibres and their nuclei were increased in size, and frequently double nuclei were seen in the muscle cells. From this period onward the changes became less marked, both macroscopically and microscopically. The hypertrophy of the muscle fibres and the muscle nuclei gradually disappeared; the degenerative changes were no longer apparent. Finally, twenty weeks after the injection, small islands of fibrous tissue which had supplanted the degenerative muscle fibres were the only remaining evidence of the hypertrophy of the heart and the myocarditis." The experimenters analyze the possible source of the changes and exclude for seemingly good reasons both myocardial anæmia due to contraction of the coronaries and direct toxic action of the epinephrin on the heart muscle. As we understand them, they hold that increased cardiac work (result of vasoconstriction produced by the epinephrin) results in surcharging the muscle cells with molecules the result of katabolic cleavage; these raise the osmotic tension and water is rapidly absorbed leading to cellular oedema and degeneration. The insult to the tissue stimulates the resident fibroblasts and when at a later period the disturbance subsides this secondary action results in a residual replacement fibrosis. It is worth noting that this primary oedema, the supposed cause of the later changes, could be equally, perhaps more happily explained by Martin Fischer's theory. The metabolites of excessive muscular activity are acid, and this acid acting on colloids of the cells in which it was generated would induce absorption of water and oedema. Fischer has clearly shown that the attractive force of acid colloid for water is much greater than that produced by variations of osmotic pressure. Be this as it may, the important fact re-

mains that these experiments demonstrate that upon the single induction of a condition of high blood pressure a series of pathological changes result that are the exact counterpart of those met with in acute myocardial degeneration and hypertrophies. Furthermore that after such a condition has existed for a long period the myocardium can become functionally normal, with no residual pathology outside of a slight fibrosis. We seem to have here a solace and a warning. All clinicians know of those cases, where after some severe cardiac strain, the symptoms of myocardial insufficiency are rapidly induced and persist for weeks, yet some months later may have entirely vanished. It has usually been assumed that such disturbances were functional rather than organic. In the light of these investigations we can no longer accept this belief. We must assume that the organ is for the time profoundly altered in structure, and that upon the immediate treatment will depend whether this is to be a temporary or permanent change. Also it is interesting to note that innumerable repetitions of the morphological cycle here described would give the exact condition we meet with in fibroid heart (chronic interstitial myocarditis). This condition is often associated with arterio-sclerosis. As the latter is considered by some writers to be the result of over-activity of the adrenals or other collections of chromaffine cells we would obtain a perfect correlation between the effects of one massive dose of epinephrin as given by the experimenters, and the continuous over-stimulation of repeated or continuous hypernephriism.

H. D'ARCY POWER.

An eminent gentleman spoke disparagingly of the modern tendency toward specialization in the healing art. Said he: "The day of the **SPECIALISM.** good old family doctor is or will soon become a thing of the past; now every portion of the body is covered by a specialty, except the umbilicus. And even that," concluded the learned one, "is in imminent peril."

We feel that the same complaint might have been made by a disgruntled, wise man many centuries earlier. We have not stopped to verify our references, but if memory does not play us false, it is recorded that the specialist Nebsect, an Egyptian priest of the time of Rameses II, got into trouble through his original studies of the action of the heart. Another Egyptian specialist removed cataracts from the eyes of the widow of Cyrus, the Persian, subsequent to the overthrow by Cambyses of the Egyptian Psamtic II, 2000 B. C. Hippocrates forcibly corrected spinal deformities after the manner discovered by Calot in 1894. Celsus, a nose and throat specialist, in the first century of our era, advocated extirpation of the tonsils with the fingers, a method which to-day is considered up to date by English surgeons. And we might continue indefinitely in the same strain.

Our contention is that the tendency to specialize was the inevitable result of problems repeating themselves which called for original thought and recurrent experience, and that without it, scientific medicine must have been impossible. Nose and throat men who are equally expert rectal surgeons,

are inspired of sources too remote to assure their doing work of an excellence to satisfy either themselves or their patients.

Lately a man presented himself, several of whose joints had long been swollen. We suspected syphilis. Gonorrhea was admitted, but syphilis denied. We attempted to make a diagnosis by exclusion. One specialist pronounced his sinuses, tonsils and teeth normal; another examined his urine, faeces, blood and internal organs; a third X-rayed him. We were able to exclude tuberculosis and other sources of infection. Finally a fifth specialist, by the so-called Wassermann reaction, verified our suspicion of syphilis. It took us three days to make a diagnosis. An equal number of good old family doctors had been three years making none at all.

We pause to prophesy that specialization will, in the future, be carried to still greater lengths and that mankind will be the gainer thereby.

J. T. W.

In the November 4th issue of the J. A. M. A. appears an article by C. C. Bass, M. D., of New Orleans, entitled "A New Conception of Immunity, Its Application to the Cultivation of Protozoa and Bacteria From the Blood and to Therapeutic Measures."

The author states that "the lysis of protoplasm, either protozoal or bacterial, depends on two substances: (1) Amboceptor and (2) Complement." To the amboceptors are attributed the following properties and functions: (1) they are generally specific, but may become common; (2) they are not destroyed by moderate heat—56° C.—or by considerable heat; (3) they are capable of dissolving large quantities of protoplasm in the presence of sufficient complement; (4) they are inactive in the absence of complement." The complement possesses the following properties and functions: "(1) It is common with reference to antigen; but more or less specific with reference to the source of amboceptor; (2) it is generally supposed that the complement is inactivated or destroyed by moderate heat; as a matter of fact, it is destroyed by any temperature above normal body-temperature (37° C.) and with a rapidity depending on the temperature; (3) it destroys large quantities of protoplasm with specific amboceptor."

The writer asserts that human specific complement does not develop at ordinary fever heat. Hence, bacteriolysis or proteolysis is prevented by local or general temperature.

Applying the above factors or principles to the cultivation of bacteria, the author finds that if blood is drawn from an individual infected with *Treponema Pallidum*, *Bacillus Typhosus*, etc., and this is employed as a blood culture at a temperature at or below 37° C., successful cultivation is prevented, because complement will develop and will with the specific amboceptor destroy the bacteria. The complement can be prevented to develop by the addition of bile and then the bacteria will grow. The author claims that by applying these principles he has successfully cultivated in citrated blood and under anaerobic conditions *Plasmodium Vivax*, *Plas-*



modium Malariae, and Plasmodium Falciparum. The temperature of the culture must be, of course, one sufficiently high to destroy the complement, but not too high to destroy the organisms.

When he applies these principles to therapeutic measures, the conditions become reversed; that is, we must supply complement by some means. To illustrate this, he cites the ordinary infected abscess. Complement will not develop on account of the local high temperature. If the pus is withdrawn from the abscess and some normal serum rich in complement is added, the cavity becomes sterile. If the abscess is of long duration at high temperature no complement will develop. If the pus is withdrawn and the cavity allowed to refill, but the temperature kept below the inactivating temperature for human complement, large amounts of complement develop and the bacteria are destroyed by amboceptor and complement. Even in this new pus, if it is withdrawn, complement develops at proper temperature.

From these theories it really appears that the normal complement is practically of no value, but that at proper temperature becomes specific with reference to the amboceptor or new specific complement is formed and acts with the specific amboceptor.

O. G. W.

#### THE VALUE OF EDEBOHL'S OPERATION IN CHRONIC NEPHRITIS.

The borderline between surgery and medicine will perhaps never be definitely determined. The surgeon often invades the medical man's well-guarded domain, convinced of the superiority of his mechanical ways of thinking, but most invariably he is compelled to beat a hasty, inglorious retreat. The therapeutic history of numerous medical conditions—enteroptosis, nephroptosis, ascites and nephritis—is corroborative of the above statement. Edebohl's operation of renal decapsulation has perhaps caused more contradictory statements and a greater number of bitter controversies than has any other operative procedure in the past two decades. Even the posthumous publications of this distinguished gynecologist, including over 70 operative cases with "seventeen permanent cures," left the great mass of practitioners absolutely skeptical, if not totally indifferent. To the modern student, the reason is obvious: there had been no co-operation between skilled surgery and equally skilled medicine; hence, incomplete, useless, misleading case histories and unscientific, unreliable conclusions. The arguments based on the results of animal experimentation (Albarran, Bernard, Johnson, etc.) were of little weight, for the functional activity of a normal dog's kidney could not be made comparable to that of a sclerosed human kidney, no matter how extensive the newly formed collateral circulation. In France, where competent observers attributed the transitory improvement in the patient's condition to the loss of blood attending the operation, decapsulation gradually gave way to either nephrotomy (Pousson) or to simple wet cupping.

Of late, however, careful observations by pathologically qualified clinicians seem to give a ray of hope for the successful management of the distress-

ing and often rapidly fatal condition of renal insufficiency. Martin Fischer, in his studies on oedema was one of the first to point out the possibilities of decapsulation in certain rare (congested) forms of nephritis. Later, Dieulafoy, Lauenstein, Herbert Moffit, reported benefit from decapsulation in well investigated cases of anasarca due to renal sclerosis.

By far the most important contribution to the subject in question was made recently by Koplik (Amer. Jour. of Dis. of Children, Oct., 1911).

Co-operating, at the Mount Sinai Hospital of New York with the well known surgical authorities Lilienthal and Elsberg, Koplik reports in great detail the histories of five children, bedridden, chronic invalids, all of whom had been unsuccessfully subjected for months to other forms of treatment for the relief of anasarca and uremia. In none of these cases had the crippled kidney responded to medical management, which covered many months. Edebohl's operation was performed in all five cases to relieve anasarca and to restore the patient to an existence at least simulating health. This was obtained in four out of the five patients operated upon. In three cases, there was a return to a condition of ambulatory well-being. One patient was lost sight of after a well-marked improvement for a year. In the fifth case where the operation was performed during an attack of uremia, the kidney failed to respond; the patient died on the sixth day. No shock was noted in any of the operations. In the perusal of Koplik's careful most complete and suggestive case histories, several facts stand out sharply. First, the well-being of the patients in the successful cases for great lengths of time after the operation and this for greater periods than with medicinal agents *in the face of continued signs in the urine of grave disease of the kidney persisting after the operation*. Secondly, the ease with which relapse may occur after operation upon exposure, and the kidney's ability to recuperate under these circumstances. Third, improvement does not set in immediately after the operation, but only after the complete healing of the operative wounds. Fourth, decapsulation is contraindicated in the presence of acute uremic symptoms.

D. T.

#### ANNUAL MEETING OF THE MEDICAL SOCIETY, STATE OF CALIFORNIA.

The attention of the members is called to the fact that the annual meeting of the State Society will be held in April, 1912, at Hotel Del Monte. The Committee on Scientific Work is now considering the matter of arranging the program and those desirous of presenting papers are respectfully requested to send their titles as soon as possible, to Dr. Wm. Ophuls, Chairman Committee on Scientific Work, Lane Hospital (corner Clay and Sacramento streets), San Francisco.

At the last Annual Meeting of the State Society, Section 6 Article 6 of the By-Laws was amended to read as follows:

"No paper, address or report presented before the general meeting, except the address of the President, shall occupy more than twenty minutes on discussion. No members shall be allowed to occupy more than three minutes, excepting those members opening and closing discussions, shall be allowed five minutes."

## ORIGINAL ARTICLES

## THE SIGNIFICANCE OF PELVIC PAIN.\*

By RAY LYMAN WILBUR, San Francisco, Cal.

Any physician who deals much with sick women and who has not had his senses somewhat dulled by the constant repetition of the complaints of pain in the pelvis, back, legs and abdomen that daily assail him must be without the normal type of nervous system. Experience has shown him that so many of these pains disappear or are no longer spoken of as soon as health follows anemia, rest follows fatigue, comfort follows worry, happiness follows gloom, or normal peristalsis of the bowel is established, that he unconsciously discounts most of the assertions made to him and often looks upon them merely as hysterical or neurasthenic manifestations. Yet pain, as we all know, is our greatest friend whenever the peritoneum is threatened, and we know what a prominent part in acute illnesses and early deaths the peritoneum plays. Where would modern abdominal surgery be were it not for pain? Its triumphs would be of a very different sort than they are to-day.

With this situation confronting us, pain of vital importance often and yet so constantly a source of complaint that it seems oftener of no great significance, it is not surprising that invalidism or death due to uncertainty or delay are ever on hand to remind us that "to err is human." We should remember that as Dana<sup>1</sup> has said, "All pain and suffering are real things. There is no such thing strictly speaking as an imaginary pain, that is a pain which has no morbid neural condition underlying it." The threshold of consciousness may be raised or lowered by directing the attention upon the pain or elsewhere. There is certainly such a thing as lowering this threshold to insignificant pain stimuli by paying undue attention to them and so suffer from either "habit" or "attention" pains or even more often from those of "post traumatic" character. The importance of the need of a clearer understanding of pelvic pain and a better clinical working basis was brought home to me most vividly once by seeing at autopsy two large carcinomatous ovaries, secondary to a small gastric wall cancer, in a large, fat, healthy appearing woman who had been treated for months for hysteria and hysterical abdominal and pelvic pain. "Hysterical pain," says E. J. Janeway,<sup>2</sup> "is often deceptive and if severe is usually organic, and we should never lose sight of the clinical significance of all acute painful attacks." When we have pigeonholed a pain by cataloguing it as hysterical or neurasthenic we should never feel satisfied that we have it rightly placed but should ever seek for a clearer interpretation of its significance. Such an interpretation is often of great difficulty, particularly in dealing with the various pelvic organs. When a severe persistent headache or a gnawing constant pain in the abdomen can be promptly relieved by the proper care of an anal fissure or when a pain in the calf of the leg disappears like magic after the rupture of a prostatic abscess, the scope of pain in pelvic disorders seems

wide indeed. When we have one group of investigators denying pain sensations to the abdominal and pelvic viscera and another insisting on their presence, and one group favoring disturbance of the parietal peritoneum and tension on the mesenteric attachments as the cause of all abdominal and pelvic pain and another considering many of these pains local reflex manifestations from over-irritation of the cord segments in which meet the sensory nerves from the viscera and the spinal nerves supplying the muscles and body wall, the problem seems more unsolvable than ever. Nevertheless there is much of vital importance that we not only know but can apply in everyday work.

The work of Henry Head<sup>3</sup> in 1893, in which by using a series of cases of Herpes Zoster and a careful study of hyperesthetic skin zones in visceral disease he was able to map out the surface of the body according to the distribution of fibers from the various cord segments, was most significant. While Ross and Mackenzie did not entirely agree with him, still the point was made that pain and tenderness could be referred along the distribution of the somatic nerves which come off from the same part of the cord as the sensory sympathetic fibers to the organ affected.

The question of the sensibility of the abdominal and pelvic viscera has been much studied and discussed, particularly by surgeons within the last ten years, since Lennander<sup>4</sup> published his series of observations indicating an absence of the pain sense for the viscera and exquisite sensitiveness of the parietal peritoneum. Zimmerman,<sup>5</sup> Hertz, Cook and Schlesinger<sup>6</sup> found the mucous membrane of the bowel and stomach, but not that of the œsophagus, unable to note touch, temperature or electrical stimulation but sensitive to heavy pressure. Sampson,<sup>7</sup> among many others, has reported findings as to the sensitiveness of the pelvic organs as noted at operation. In general the consensus of opinion of surgeons supports the views of Lennander and indicate that while we possess internal sensation it is indefinite in localization. Kast and Meltzer<sup>8</sup> after many experiments upon dogs, in which they tested the sensibility of the viscera through small openings in the abdominal wall, concluded that they possessed sensory elements and explained the apparent insensitiveness of the viscera as seen at operation to exposure to the air, or manipulation, or shock or the cocaine used for local anesthesia, or to combinations of these effects. Ritter<sup>9</sup> working with animals under morphin narcosis concluded that the sympathetic nerves transmit sensory impulses, and laid stress upon the marked sensitiveness of the blood vessels. He recommends individual cocainization of them before ligation in order to avoid shock. Mitchell<sup>10</sup> records his ability to reproduce typical appendicular colic in a physician operated upon under local anesthesia by tension upon the mesentery of the appendix, while the appendix itself was insensitive. He considers true muscular spasm as always due to inflammation of the anterior or lateral parietal peritoneum. Whichever view we accept is not so important for whether these sympathetic fibers are looked upon as conveying distinct pain impulses or merely exaggerated sensory stimuli

\* Read before the Alameda County Medical Society, September 19, 1911.



is of little significance to the clinician, but that strong stimuli of visceral origin may be interpreted as coming along other afferent fibers, from the skin or muscle for instance, is of great diagnostic importance. This "autonomic pain," that is, a pain of visceral origin felt in some superficial area or muscle, has been relieved by Reed<sup>11</sup> by cocain infiltration into the affected muscle. By it the spasm over an inflamed appendix is interpreted in the light of a definite nerve reflex in which the intensity of the pain, the spasm, and the visceral disturbance go hand in hand. The value of mapping out the Head's zones of hypersensitiveness in the diagnosis of such ailments as aortitis, stone in the kidney, etc., has been brought out by Bittorf<sup>12</sup> and many other observers, some of whom have also described attacks of Herpes Zoster along the corresponding Head's Zones. Libman<sup>13</sup> of Mt. Sinai Hospital in New York, considers it of much value, if by a preliminary pressure under the ear abnormal nervous sensitiveness is first eliminated. Deep pressure with the thumb is usually painful there, but for a short time only. If in a patient the pain is not evident it is of value to search out the areas of hypersensitiveness of the skin, for if found they will probably point to the visceral lesion present.

For the pelvic organs the skin areas have been mapped out by Head. He found that in pelvic affections the most tender point posteriorly was near the last lumbar and first sacral spines, an area corresponding to the pain at the lower part of the back in labor, and that in profound visceral disease of pelvis there is often a sensitive area on the back of thigh extending down to the leg. He indicates the following areas of skin hyperesthesia as tested by light pinching of the skin:

For the ovary—The area enclosed above by a line running horizontally from top of first lumbar spine to umbilicus, and below by a line from the third lumbar spine to midway between pubes and umbilicus, but having a little downward tag near ant. sup. iliac spine.

For the body of uterus and fallopian tubes—An area bounded above by the preceding one, and below by a line running from a little below the top of the sacrum to the symphysis but having a dip down over the buttock and another on the front of the thigh.

For the cervix (uterine)—The area over the lower part of sacrum.

For the female genital organs three zones have been made out by Reed<sup>11</sup> with especial reference to the muscular system.

I.—The upper genital. Fundus of uterus, fallopian tubes and ovaries (supplied by sympathetic branches from the hypogastric plexus, sensory branches of XII D and first and second L nerves) with autonomic filaments afferent from zone to cord, and reaching finally the intratransversi, quad, lumborum and the two psoas muscles.

II.—Middle genital zone. Cervix of uterus (supplied by sympathetic branches from lower ganglia, sensory branches of II, III and IV S. N.) with autonomic branches to the two glutei, quad. femoris, coccygeus and levator ani muscles.

III.—Lower genital zone. External genitala and

vagina. Reed found in his own work pain in costo iliac interval and along the posterior Ramus of XII Dorsal in ectopic gestation, submucus fibroid and follicular degeneration of the ovaries, and pain in the ileogluteal region in painful cicatrix of cervix, cervical erosion, intramural myomata of cervix and Nabothian cysts. He says that in parturition the autonomic manifestations of pain shift from the upper to the lower superficial zones coincident with the progress of labor.

Pain is almost a constant factor in all varieties of pelvic inflammation and the sites to which it is referred bear often no constant relation to the organ involved. Any part of the region from the umbilicus to the knees may be affected, and while by mapping out Head's Zones of hyperesthesia we may get a clue as to the site of the inflammatory process, still this procedure often fails us. Mayland<sup>13</sup> points out the left iliac region two inches inside of the superior iliac spine as the favorite reflex region for pelvic inflammations. Here there is often pain on pressure, with both the skin and muscle hyperalgesic. Backache has long been considered as a reflex pain from various pelvic abnormalities. Kelly of Baltimore considers its relations to the uterus largely fallacious and considers it an affection per se dependent upon anemia, poor health, affections of the muscle, nerves, ligaments, bones, joints or the spinal cord itself. The "womb fallen backward, forward, sidewise or upside down" plays a smaller role in the daily work of the intelligent physician than it formerly did. Along with tinkering gynecology in general it is passing along toward a prominent position upon that great shelf used by the medical profession for its exploded enthusiasms. When about half of our women go around with a uterus that fails to comply with our ideas of what is anatomically correct, and pay no attention to it unless it is brought urgently within the horizon of "attention pains" by the thoughtless attitude of an examining physician, there is certainly no occasion for an exaggeration of the importance of uterine malposition as a cause of pelvic pain. It undoubtedly has its place as a source of distress, particularly in the malpositions in early pregnancy and soon after labor or in infections, but the part played is a comparatively minor one. To enumerate all of the causes of pelvic pain would necessitate an enumeration of all of the possible painful lesions of the organs contained in or connected with the pelvis. Our list would extend from stone in the kidney to coccygodynia. Among the more unusual that must always be kept in mind are the reflex pains in the inguinal or iliac regions seen in inflammatory diseases or tumors of the sigmoid; those due to constipation caused by local obstruction in the pelvis, such as has been described by Miles,<sup>14</sup> from the broad ligament having assumed a horizontal position making a shelf on which the pelvic colon is apt to kink; the periodic intermenstrual pains (Heaney,<sup>15</sup> F. Müller<sup>16</sup>), which have found no adequate explanation as yet; pains due to disease processes invading the wall of the veins (Opitz<sup>17</sup>) and neuralgic-like pains from distension of the pampiniform plexus which resemble closely in origin and type the neuralgia of some cases of varicocele in men. Adhesions of the sigmoid to the tube and

broad ligament is often the cause of the severe pains of salpingitis and all persistent pelvic pain must have the possibility of a local tubercular peritonitis considered when we seek for its origin.

Fortunately the pelvis is more accessible than many other parts of the body. With rectal and vaginal examination many of the gross lesions are readily diagnosed, and if the very fact that the parts are accessible does not make us blind to other opportunities of getting information and if we are conservative enough not to tie up all of the pains or symptoms complained of to the more evident abnormalities found, we can accomplish much in the pelvic diagnosis. We should beware particularly of operations done in the hysteric or neurasthenic simply in the hope that by relieving purely minor lesions great results will follow (Ortscheit<sup>18</sup>). Unless an operation is justified and well conceived and carried out it is more apt to be followed by a post operative or traumatic neurosis than by the relief sought for. With pain as a guide, with the sigmoidoscope, cystoscope and speculum available, with vaginal and rectal touch, with the stools, urine and discharges readily available for study, it is little wonder that we have gone far in our recognition of pelvic disorders, and that we will go farther still is certain if we intelligently use all of the sources of information that are open to us now and that will open to us if we carefully analyze our patients in the light of the newer studies made upon the nervous system.

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### A PRACTICAL METHOD OF ARTIFICIAL FEEDING.\*

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The question of an efficient method for the artificial feeding of infants has been a great source of annoyance to the medical profession for years. Many suggestions have been offered and many complex and uncertain methods have been devised for eliminating this difficulty, but, in all the efforts made thus far, the technique has been too complicated for the general practitioner and, consequently, the tendency has been to draw away from the best substitute for mother's milk, namely, cow's milk, prop-

erly modified, and to accept the many baby food preparations that are now on the market, the foods in some cases being good as far as they go towards producing heat and energy, but always decidedly deficient in proteid, both soluble albumin and insoluble casein, and always containing sufficient or an excess of fat. Hence, while the child for the time being appears plump and well, the inevitable result of a *deficient proteid* diet is rachitis, delayed dentition and walking, and many of the common gastrointestinal disturbances of infants, the direct result of faulty feeding.

A soluble proteid diet in proper proportion is essential for cellular activity and growth, and its very absence is the cause of the failure of the many organs of the body to act harmoniously in time of action, quality of action and quantity of action.

What we desire in artificial feeding is something practical and something that will enable us to approximate human milk and, at the same time, give us an elastic method that will permit of much variation in the composition of fat, casein and albumin, so as to suit the physiological age and not the chronological age of the stomach of each and every individual infant, for only by so doing can we reduce infant mortality and enfeebleness.

The majority of infants, when fed on ordinary cow's milk, which has been diluted, soon manifest gastro-intestinal disorders and the finding of curds in the stools is suggestive of one of two things:

1. Excess of fat in diet.
2. Undigested proteid (casein).

To determine whether fat or casein is at fault, dissolve some of the feces in a test tube in ether. If the white curds be fat, why they are soluble in ether, while the casein is insoluble in ether.

The only rational substitute for human milk is modified cow's milk in a proportion that will give us the greatest amount of soluble proteid or albumin and will keep down the casein content to the minimum. To get a formula suitable to the stomach of each and every individual and gradually increase the percentage of fat, casein and albumin is the aim. Because a child is four or five months old, it does not necessarily indicate that the physiological activity of its digestive apparatus has advanced to that point. This is the mistake made by so many practitioners when they foolishly try to feed a stomach according to the chronological age rather than by the physiological possibilities.

The chief fault in cow's milk is the preponderance of insoluble casein, 3% in cow's milk and only 8-10 of 1% in human milk. Casein is decidedly indigestible for young infants and its lack of solubility a great hindrance, and yet proteid is absolutely essential for cellular activity.

The problem confronting us is to find some method of modifying cow's milk that will enable us to increase the soluble albumin content and at the same time decrease the insoluble casein content, giving just enough of the latter in the first six months to keep the rennet enzyme physiologically active and to thus prepare the stomach for larger amounts of casein that will be necessary as the infant becomes older, because then the complex digestive



glandular system will be more active. About the seventh month the dilution of cow's milk with whey may become so small that the ratio between albumin and casein is lost and we must then employ an unsplit proteid diet.

In this article on "Artificial Feeding" I shall divide it into two separate and distinct divisions, the line of demarcation being drawn at the point of tolerance of casein in fairly large amounts, 1.45-1.65% of casein. The division occurs at the physiological age of seven months.

I. During the first six months the albumin content must be high, and the casein low but gradually increased to the point of tolerance.

II. During the next five months the ratio between albumin and casein is lost and an undivided proteid content is used.

To accomplish this method of modification two distinct types of modification are used, namely:

I. The whey-cream-skim milk or proteid splitting method, applicable during the first six months.

II. The top milk with whey, water or cereal as diluents, applicable during the last five months.

Both methods are simple, accurate, and practical, being dependent upon five essential factors that must be remembered so as to work out each and every formula with mathematical precision.

The five factors necessary for the application of the "Split Proteid Method" and the "Top Milk" method are:—

1. The essential differences between cow's milk and human milk.

2. The percentage of fat existing in cream or in the upper 5 oz. of cream in the quart milk bottles; also an understanding of Top Milk with its variations in cream percentages.

3. The Preparation and Percentage Composition of Whey; Composition of Skim Milk.

4. The amount of fat, sugar, proteid (Albumin and casein) required according to the physiological age of the infant's stomach.

5. One heaping tablespoonful of sugar of milk or  $\frac{1}{2}$  oz. to each quart of modified milk increases the sugar percentage 1.5%; in all 20 oz. mixtures of the "Cream-Whey-Skim Milk" method  $\frac{2}{3}$  of a tablespoonful of sugar will bring up the sugar percentage to 6.5%.

1. Difference between human milk and cow's milk:

	Fat.	Casein.	Albumin.	Combined Proteid.	Sugar.
Human ..	3.75	0.8	1.21	2.01	6.5
Cow's ....	4	2.81	0.6	3.41	4.9

At a glance, we see two great discrepancies, namely, the excess of sugar in human milk and the overwhelming excess of casein in cow's milk; while a child a few weeks old takes about 2% of proteid in human milk, we must remember that 1.21% of it is soluble proteid in the form of albumin and not casein.

2. By Top-milk is meant the layer of cream that one finds in the upper half of the quart milk bottles, the percentage of fat in this cream decreas-

ing directly from above downward. The upper  $\frac{1}{4}$  or the upper 8 oz. contains 14% of fat; the upper  $\frac{1}{3}$  or the upper 10  $\frac{2}{3}$  oz. contains 10% of fat; and the upper  $\frac{1}{2}$  or the upper 16 oz. contains 7.5% of fat.

Ordinary cream, as put up in  $\frac{1}{2}$ -pint and pint bottles, contains 20% of fat; the upper five oz. of cream in a quart milk bottle contains 20% of fat.

The cream is dipped out of the bottle with a Chapin dipper, taking the upper 5 oz., upper  $\frac{1}{4}$ , upper  $\frac{1}{3}$  or upper  $\frac{1}{2}$  according to the percentage of fat you wish in your formula after dilution.

3. Whey is made from the balance of the milk in the bottle, first reducing it to skim milk. The preparation of whey is important and the method is as follows:

(a) Take one pint of skim milk and heat up to 100° F.

(b) Then add one dram of Fairchild's Essence of Pepsin, which precipitates the casein as "paracasein." Allow the mixture to stand until it begins to show a curd.

(c) Then heat solution again and maintain a constant temperature of 155° F. for 15 minutes, stirring constantly until the curd, a tough leathery mass, separates.

(d) Strain through tea strainer or cheese cloth while hot, the filtrate being whey whose percentage composition is as follows:

	Fat.	Casein.	Albumin.	Sugar.
Whey .....	.50	.0	.9	4.90
Skim milk .....	.50	2.81	.6	4.90

It is important to give the mother definite instructions regarding the preparation of whey. Never use anything but "skim milk" because it gives you a fairly constant low percentage of fat 0.5%. Maintain a temperature of 155° F. for fifteen minutes.

A temperature lower than that will keep the curdling ferment active; a temperature above 155° F. will coagulate the lactalbumin. Cool the whey before adding cream.

4. The amount of fat, casein, albumin and sugar required by an infant according to the physiological activity of its stomach can be approximately estimated as follows:

	Fat.	Casein	Albumin.	Proteid.	Sugar.
1 wk. to 2 mos.	1-2.5	.07-.42	.88	.95	5-6.5
2 mos. to 4 mos.	2.5-3	.42-.70			6.5
4 mos. to 7 mos.	3-3.50	.70-1.26			6.5
7 mos. +	3.5-5	1.45-1.65	.30	.2	6.5

As diluents in the split proteid method, there are two, whey and skim milk, whose indications are as follows:

Whey has the advantages over water and cereals on account of its great nutritive value as it enables us to increase the proteid content by adding soluble lactalbumin and, since whey contains no casein, we are getting a proteid diet with much reduced casein. The only casein present will be that obtained from the cream but the dilution with whey in the early months is so great that the casein percentage from the cream is decidedly low.

Whey also contains 4.9% sugar and here again, by using whey as a diluent, it raises the sugar percentage in the mixture and hence requires less lactose to be added to bring the sugar content up to 6.5%.

Skim milk is used in conjunction with whey for the purpose of increasing the tolerance of casein as the child grows older and, hence, gradually accustoming the stomach to care for larger amounts of casein. The substitution of one ounce of skim milk for the ounce of whey will add .14% casein and subtract .02% albumin, the fat and sugar remaining unchanged.

In the "Top Milk Method," the diluents that can be used are water, cereals and whey.

Water, as a diluent, possesses no nutritive nor mechanical value but can be used in the later months where there is no time for the preparation of cereals or whey.

Cereal diluents, such as wheat, barley, oats, etc.,  $\frac{1}{2}$  oz. to a pint of water boiled for 45 minutes and strained, offer little or no nutritive asset, but they do have a mechanical value in that it helps to keep the casein in a colloidal state, a big factor in enabling the milk to be better tolerated by exceptionally irritable stomachs.

Whey, as a diluent during the last five months of the first year, can, as we have already seen, offer but little nutritive value as the dilution is so small and the casein content necessarily so high at this period that the amount of albumin in the diluent is not sufficient to overcome the casein. The only advantage it has is to enable us to figure out the percentage of albumin a little more closely. In a one and one dilution with whey we can add .45% more of lactalbumin.

I now invite your attention to the application of this "Split Proteid" method and shall work out in detail a few formulae, every one of which is based on the following facts:

1. Cream is 20% as standard and figure on a 20-oz. mixture.
2. Whey F. .50, C. 0, A. .9, sugar 4.9.
3. Skim milk F. .50, C. 2.81, A. .6, sugar 4.9.
4. Percentage of fat, sugar, casein and albumin required according to physiological age of stomach.
5. One tablespoonful of lactose to a quart of mixture raises the sugar content 1.5%; in a 20-oz. mixture  $\frac{2}{3}$  of a tablespoonful of sugar raises the sugar content to 6.5%.

**Example No. I.** Formula for a baby 2 to 3 days old:—Here, whey in whole or diluted will answer the purpose for a couple of days when the fat percentage must be raised as .5% is too small. The proteid percentage of .9 while high is all right as we are dealing with a casein free proteid.

**Example No. II.** Formula for a week old stomach:—Fat required, 1.50; casein required, .14; albumin required, .88; sugar required, 5%; use cream 20% with whey in a 1-20 dilution.

Steps:

1. Cream 20	F. 20	C. 2.81	A. .6	S. 4.90
	1	.14	.03	.24
2. Whey 20	F. .5	C. .0	A. .9	S. 4.90
1 part whey	.025	.0	.045	.24
19 parts whey	.475	.0	.045	.24
3. Total of 1 part cream and 19 parts whey.	F. 1	C. .14	A. .03	S. .24
	0.475	.0	.85	4.80
	1.475	.14	.88	4.80

R

Cream 20% oz. i

Whey oz. xxix

Sig.: oz. ii every 2 hours.

**Example III.** Formula for a two weeks' old stomach:—Fat required, 2%; casein required, .21; albumin required, .87; sugar required, 6.5; use 20% cream, oz.  $1\frac{1}{2}$  and whey sufficient to make 20 oz.

Steps:

	F. 20	C. 2.81	A. .6	S. 4.9
	1	.14	.03	.24
$1\frac{1}{2}$ parts cream	1.5	.21	.045	.36
1 part whey	.025	.0	.045	.24
$18\frac{1}{2}$ parts whey	.4625	.0	.8325	4.40
Total $1\frac{1}{2}$ parts cream and $18\frac{1}{2}$ parts whey.	F. 1.5	C. .21	A. .045	S. .36
	.46	0	.832	4.40
	1.96	.21	.877	4.76
Approx. 2	.21	.87	5	

$\frac{2}{3}$  of a tablespoonful of lactose to this 20 oz. mixture increases sugar to 6.5.

R

Cream 20%, oz. iss.

Whey, oz. xviii<sup>ss</sup>.

Lactose, T. S.  $\frac{2}{3}$ .

Sig.:—Oz. ii every two hours.

**Example IV.** Formula for a two months' old stomach:—Fat required, 2.50; casein required, .28; albumin required, .86; sugar required, 6.5.

	F. 20	C. 2.81	A. .6	S. 4.9
	1	.14	.03	.24
1 part cream	1	.14	.03	.24
2 parts cream	2	.28	.06	.48
1 part whey	.025	0	.045	.24
18 parts whey	.45	0	.81	4.32
Total 2 parts cream and 18 parts whey.	F. 2	C. .28	A. .06	S. .48
Cream	2	.28	.06	.48
Whey	.45	0	.81	4.32
	2.45	.28	.87	4.80
Approx.	2.50	.28	.87	5

R

Cream, oz. ii.

Whey, oz., xviii.

Lactose, T. S.  $\frac{2}{3}$ .

Sig.:—Oz. III-IV every 3 hours.

Same prescription for a 25 oz. mixture.

R

Cream, oz. i<sup>ss</sup>.

Whey, oz. xxiii<sup>ss</sup>.

Lactose, T. S.  $\frac{2}{3}$ .

Sig.:—Oz. iii every 3 hours.

From these three examples we can deduce the following generalizations in regard to making the formulae:

1. All 20 oz. mixtures contain approximately 5% of sugar,  $\frac{2}{3}$  of a T. S. of lactose makes it 6.5%.

2. The substitution of each oz. of 20% cream for each oz. of whey raises the fat content 1%, increases the casein content .14%, and decreases the albumin content  $\frac{2}{10}\%$ .

3. As the percentage of casein in cream and skim milk is the same, therefore the substitution of 1 oz. of skim milk for whey increases the casein .14% and decreases the whey albumin  $\frac{2}{10}\%$ .

Rule for making mixtures 25 oz. and 30 oz.

(a) The addition of  $\frac{1}{4}$  more of each ingredient gives you a 25 oz. mixture;  $\frac{1}{2}$  more a 30 oz. mixture.

**Example V.** Formula for a 4 months' stomach:



—Fat required, 3%; albumin required, .81; casein required, .63; sugar required, 6.5.

R

Cream, oz. ii<sup>ss</sup>.  
Skim milk, oz. ii.  
Whey, oz. xv<sup>ss</sup>.  
Lactose, T. S. 2/3.

Sig:—Oz. iv every 3 hours.

Fat in cream in 2½ oz. 2.50  
Fat in whey .50

Total 3.

Casein in mixture of whey and cream, oz. 2½ .35  
Casein in oz. ii of skim milk .28

Total .63

Albumin in whey and cream 1-20 dilution, .88%  
Albumin lost (in whey and cream when 1½ oz. of cream is substituted for 1½ oz. of whey) is .03%.  
Albumin lost when oz. ii of skim milk is substituted for oz. ii of whey, .04%.  
Total albumin lost is .07.

Therefore in a 20 oz. mixture when we use 2½ oz. of cream, the fat content is 3%; the casein, .35%, and the albumin is .85%. By substituting oz. ii of skim milk for oz. ii of whey the casein is further increased (.14x2) = .28% while the albumin is further decreased (.02x2) = .04%.

The same formula in a 30 oz. mixture (½ more of each ingredient) is as follows:

R

Cream, oz. iv.  
Whey, oz. xxiii.  
Skim milk, oz. iii.  
Lactose, T. S. I.

Sig:—Oz. iv every 3 hours.

*Example VI.* Formula for 5 months' stomach:  
—Fat required, 3.50; casein required, 1.12; albumin required, .72; sugar required, 6.5; 20 oz. mixture.

R

Cream, oz. iii.  
Skim milk, oz. v.  
Whey, oz. xii.  
Lactose, T. S. 2/3.

30 oz. mixture of same.

R

Cream, oz. iv<sup>ss</sup>.  
Skim milk, oz. vii<sup>ss</sup>.  
Whey, oz. xviii.  
Lactose, T. S. i.

Sig:—Oz. iv every 3 hours.

*Example VII.* Formula for a 6 months' stomach:  
—Fat required, 3.50; casein, required, 1.26; albumin required, .72; sugar required, 6.5;

R

Cream, oz. iii.  
Skim milk, oz. vi.  
Whey, oz. xi.  
Lactose, T. S. 2/3.

Sig:—Oz. v every 3 hours.

Same prescription in 30 oz. mixtures.

R

Cream, oz. iv<sup>ss</sup>.  
Skim milk, oz. ix.  
Whey, oz. xvi<sup>ss</sup>.  
Lactose, T. S. I.

Sig:—Oz. v every 3 hours.

*Example VIII.* Formula for a 7 months' stomach:—Fat required, 3.50; casein required, 1.45; albumin required, .30; sugar required, 6.5.

R

Cream, oz. iii.  
Skim milk, oz. vii<sup>ss</sup>.  
Whey, oz. ix<sup>ss</sup>.  
Lactose, T. S. 2/3.

Sig:—Oz. v every 3 hours.

Same in 30 oz. mixture.

R

Cream, oz. iv<sup>ss</sup>.  
Skim milk, oz. xi.  
Whey, oz. xiv<sup>ss</sup>.  
Lactose, T. S. I.

Sig:—Oz. v every 3 hours.

Thus, we see that, as we approach the seven months' period, the increase of casein tolerance is so much that it is impossible to attempt to use the split proteid as the ratio between casein and albumin is entirely lost. The child's stomach is now in condition to accept 1.45% of casein, a thing utterly impossible five or six months previously when the casein content had to be as low as .14%.

With this condition at hand, we can readily substitute the Top Milk method of modification without any injury to the child and, at the same time, entailing less work on the part of the mother in the preparation of the food. In other words, we are to employ the unsplit proteid feeding using top milk with water, cereals or (whey if need be) as diluents.

The Essential Facts in making these formulae are:

1. Top milk—upper ¼ contains 14% fat; upper 1/3 10% fat; and upper ½ 7.5% fat.

2. One heaping tablespoonful of sugar to each quart of mixture increases the sugar content 1.5%.

3. Percentage of fat, proteid and sugar required by physiological age of stomach.

4. Technic of prescription writing.

(a) First, determine the total quantity to be made up (Example, oz. xxx).

(b) Secondly, determine the number of oz. of ¼, 1/3 or ½ top milk desired for the fat content. This is represented by the degree of dilution. In a 1 to 3 dilution, 1 part will be cream and 2 parts diluent. In this case cream will be oz. x and diluent, oz. xx.

(c) To increase the sugar percentage 1 T. S. to qt. equals 1.5% increase of sugar.

*Example I.* Formula for a 7 months' stomach:  
—Fat required, 3.50; proteid required, 1.75; sugar required, 6.5. Use 1/3 top milk with whey as diluent in a 1 to 3 mixture.

	F.	P.	S.
3   10	3.3	3.5	4.9
	F.	P.	S.
1/3 whey	.50	.9	4.9
	.16	.3	1.63
2/3 whey	.32	.6	3.26
Total	F.	P.	S.
1 part cream	3.3	1.1	1.6
2 parts whey	.16	.6	3.26
	3.46	1.7	4.86

R

1/3 top milk, oz. x.  
Whey, oz. xx.  
Lactose, T. S. I.

Sig:—Oz. v to vi every 3 hours.

*Example II.* Formula for an 8 months' stomach:  
—Fat required, 3.75; proteid required, 1.75; sugar required, 6.5. Use ½ top milk in a 1 to 2 dilution with water or cereal as diluent.

	F.	P.	S.
2   7.5	7.5	3.5	4.9
	3.75	1.75	2.45

R

$\frac{1}{2}$  top milk, oz. xvi.  
Water or cereal, oz. xvi.  
Lactose, T. S. I.

Sig:—oz. vi every 3 hours.

*Example III.* Formula for a 9 months' stomach:

Fat required, 3.75; proteid, 2; sugar, 6.5. 1 part top milk upper  $\frac{1}{2}$  in a one to two dilution with whey.

	F.	P.	S.
1 part top milk	3.75	1.75	2.45
1 part whey	.25	.45	2.45
Total	4.	2.20	4.90

R

Top milk  $\frac{1}{2}$ , oz. xvi.  
Whey, oz. xvi.  
Lactose, T. S. I.

Sig:—Oz. vi every 3 hours.

There are many cases where, for some idiosyncrasy, the infant's stomach will be unable to tolerate the percentage of fat or proteid in the proportion normal to the supposed physiological activity of the stomach at a certain age, and the appearance of curds in the stools with the above test with ether will enable one to decide whether to cut down on the proteid or fat. These methods of modification are so elastic that one can build up a formula suitable to each and every individual child.

The cases of "rachitis" and "gastro-intestinal" disorders usually come to the notice of the practitioner when the child is six months old or more. The first thing to do is to determine the physiological condition of the stomach by starting off with a split proteid mixture of a definite low standard and try it out for a week or so and then increase gradually, or decrease, if necessary, the percentage of fat and casein. A fairly good index to the proper feeding of an infant, besides the general appearance of the child and the condition of the gastro-intestinal tract, is the weekly weight of the infant.

A child at six months should have doubled its weight and at twelve months should have trebled it.

Another perplexing problem that comes to the general practitioner is the following:

"A baby has been under the care of another physician for three or more months and, for some reason, the child is not doing well on the food as prescribed."

The new attending physician, after having obtained the history of the case in detail with special reference to the food prescribed and the quantity of each ingredient, should at once determine by a little figuring whether the proportion of casein, albumin, fat and sugar answers the needs of the individual child.

This can be readily done if you use the following rule: "Multiply the number of ounces of the containing factor by the percentage composition of fat, proteid and sugar in cow's milk and divide by the number of ounces in the formula."

*For example.*—Is the following prescription suitable for a three months' old stomach?

R

Cream, oz. iii.  
Skim milk, oz. i.  
Whey, oz. xvi.  
Sugar, oz.  $\frac{1}{2}$  (1 T. S.)

Sig:—Oz. iii every 3 hours.

Percentage of fat in

1. Cream  $3 \times 20 = 3\%$  = 3.0 %2. Skim milk  $.5 \times 1 = .1 = 1 \times 1 = 1 = .02\%$ 3. Whey  $\frac{1}{2} \times 16 = 8 = 2 = 4\%$ 

Total 3.42% fat

Undivided proteid in

1. Cream  $3 \times 3.5 = 10.5 = 1.05 = .525\%$ 2. Skim milk  $1 \times 3.5 = 3.5 = .35 = .175$ 

Total .70

Since casein and albumin are present in the ratio of 14:3 in cow's milk, in .70% of combined proteid, the albumin present would be represented by x in the following proportion:

14:3::70:x

 $14x = 2.10$  $x = 2.1 = 3 = 3 \times 1 = 3 = .15\%$  albumin $\frac{14}{20} = \frac{2}{20} = \frac{10}{20} = \frac{2}{20} = .55\%$  casein

Whey proteid

 $16 \times 0.9 = 14.4 = 1.44 = 72\%$  Albumin

Total casein in mixture .55%

Total albumin .72 + .15 = .87%

Sugar in

1. Cream  $4 \times 4.9 = 19.6 = 1.96 = .98\%$ 2. Skim milk  $1 \times 4.9 = .49 = .245\%$ 3. Whey  $16 \times 4.9 = 4 \times 4.9 = 19.6 = 3.92\%$ 4. Lactose added (consider % 100).  
 $\frac{1}{2} \times 100 = 50 = 5 = 2.5\%$ 

Total 7.645% sugar in mixture

Percentage composition normal to 3 mos.

Fat .....2.50%	Fat .....3.42 %
Casein .....56%	Casein .....0.55 %
Albumin .....83%	Albumin .....87 %
Total proteid....1.39%	Total proteid....1.42 %
Sugar .....6.5%	Sugar .....7.625%

From the above figures one can readily see that the above prescription is entirely unsuitable for a stomach of three months. The fat and sugar are decidedly too high, while the casein and albumin contents are good.

The prescription should be as follows:

Corrected prescription.

Wrong prescription.

R	R
Cream .....oz. ii	Cream .....oz. iii
Skim milk .....oz. ii	Skim milk.....oz. i
Whey .....oz. xvi	Whey .....oz. xvi
Lactose .....T. S. 2/3	Lactose .....T. S. I.
Sig:—Oz. iii every 3 hrs.	

Proof of corrected prescription—

Fat in

1. Cream  $2 \times 20 = 2. \%$   
20



2. Skim milk	$2 \times .5 = 1.0 = 1$	$= 0.05\%$
	$\frac{20}{20} \quad \frac{20}{20} \quad \frac{20}{5}$	
3. Whey	$16 \times \frac{1}{2} = 8. = 2$	$= 0.40\%$
	$\frac{20}{20} \quad \frac{20}{20} \quad \frac{5}{5}$	

Total fat

2.45%

Undivided proteid in

1. Cream	$2 \times 3.5 = 3.5$	$= .35\%$
	$\frac{20}{20} \quad \frac{10}{10}$	
2. Skim milk	$2 \times 3.5 = 3.5$	$= .35\%$
	$\frac{20}{20} \quad \frac{10}{10}$	

Total undivided proteid

.70%

Casein and albumin in undivided proteid

70:x::14:3					
$14x = 2.10$					
$x = 2.1 = 0.3 = 3 - 1 = 3$					
	$\frac{14}{14}$	$\frac{2}{2}$	$\frac{10}{10}$	$\frac{2}{2}$	$\frac{3}{20}$
					$= .15\%$ Albumin
					$.55\%$ casein

Whey proteid

$16 \times 0.9 = 1.44 = .144$	$= .72\%$ albumin
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$\frac{20}{20} \quad \frac{20}{20} \quad \frac{2}{2}$
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Total casein in mixture	$= .55\%$
Total albumin (.72 ÷ .15)	$= .87\%$

Sugar in

1. Cream	$2 \times 4.9 = 4.9$	$= 0.49\%$
	$\frac{20}{20} \quad \frac{10}{10}$	
2. Skim milk	$2 \times 4.9 = 4.9$	$= 0.49\%$
	$\frac{20}{20} \quad \frac{10}{10}$	
3. Whey	$16 \times 4.9 = 4 \times 4.9 = 9.16$	$= 3.92\%$
	$\frac{20}{20} \quad \frac{5}{5} \quad \frac{5}{5}$	
4. Lactose (added)	$\frac{2}{3} \times \frac{1}{2} \times 100 = 100 \times 1 = 5$	$= 1.66\%$
	$\frac{20}{20} \quad \frac{3 \times 20}{3 \times 20} \quad \frac{3}{3}$	

Total

6.56% sugar

This whole problem of formulation, at the first glance, looks very difficult, but a few hours' thought on the subject will readily convince one of its simplicity and will also convince one of its accuracy, and there is no question but what the rate of infant mortality and enfeebleness would be greatly reduced if the practitioner could only see the ADVANTAGE in the USE of a SPLIT PROTEID diet during the first six months of an infant's life, since the stumbling block—too much casein—has been admirably eradicated.

In closing I wish to make out a little scheme in tabulated form of the essential points for working out a suitable prescription, and trust that it may be of some value to the practitioner and to the student. Scheme for Artificial Feeding in "Split Proteid" and "Top Milk" Methods.

	Fat.	Casein.	Albumin.	Sugar.
Human milk	3.75	0.8	1.21	6.5
Cow's milk	4	2.81	0.6	4.9
Whey	0.5	0	0.9	4.9
Skim milk	0.5	2.81	0.6	4.9
1 wk.-2 mos.	1-2.5	.07-.42	.88	5-6.5
2 mos.-4 mos.	2.5-3	.42-.70		6.5
4 mos.-7 mos.	3-3.5	.70-1.26		6.5
7 mos. +	3.5-4	1.45-1.65	.30	6.5

Top milk, upper 5 oz. 20% cream;  $\frac{1}{4}$ , 14% cream; 1-3, 10%;  $\frac{1}{2}$ , 7.5%.

In 20-oz. mixture.

Fat.	Casein.	Albumin.	Sugar.
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Cream, oz. i. . . . }	1.50	.14	.18	6.5
Whey, oz. xix. }				
Sugar, T. S. 2-3.				

1 oz. of cream substituted for 1 oz. of whey increases fat 1% and casein .14%; reduces albumin .02%.

$\frac{1}{4}$  more of each ingredient in Split Proteid Method gives you a 25-oz. mixture;  $\frac{1}{2}$  more a 30-oz. mixture.

1 oz. of skim milk substituted for 1 oz. of whey increases casein .14% and reduces albumin .02%. The fat and sugar remain unchanged.

## THE PROSTATE IN CHRONIC GONORRHEA.\*

By W. P. WILLARD, M. D., San Francisco.

I am taking up this rather time-worn subject again on account of the number of cases that I have seen lately from the hands of other men, in which the prostate was entirely overlooked as being the real cause of a prolonged urethritis.

The prostate seems to be the stumbling block in the treatment of gonorrhea. When we know that infection of this gland occurs in from 60-90% (according to different authorities) of all gonorrheas that reach a subacute or chronic stage, why is it not more often suspected and examined? By examined I mean a microscopical examination of the secretion, as this is the only reliable method of determining whether the gland is infected or not. The man who contents himself with palpation only, is sure to overlook an accurate diagnosis.

The dangers of an infected prostate are great and an individual may unconsciously be a menace to himself and others. It is not the man with a frank urethral discharge that is to be feared, but he with a slight morning drop and a few threads in the urine who will carry a focus of infection in his prostate for years. The stimulus of marriage or drinking often lights these up and a urethral discharge is noticed for a few days. Often epididymitis or a systemic infection originates from an old prostatic focus.

Many of these patients suffer from pains in the back, loins, thighs, pubic region, testicles, or are invalidated with marked neurasthenia and impotence. Sterility is very often present when the prostate is infected and, although we do not know positively the function of the prostatic secretion, the presence of pus and the absence of lecithin seems to cause a rapid death of the spermatozoons.

According to the involvement, we can divide prostatitis into catarrhal, follicular, parenchymatous and phlegmonous forms. Catarrhal prostatitis is usually the result of a gonorrheal infection rather than a condition that is kept up by gonococci. The gonococci infect the gland and lower its resistance, which makes a favorable soil for other bacteria, especially the colon group and staphylococci. These in turn outgrow and eliminate the gonococcus. These organisms keep up a low grade of inflammation which often manifests itself by a slight clear secretion at the meatus and a few threads in the urine. We never get a profuse discharge in this form after drinking and intercourse, and what does appear subsides in a few days without treatment. At times the patient will complain of indefinite pain in the

\* Read before Shasta County Medical Society, July, 1911.

urethra or perineum or of impotency or sterility. The secretion contains numerous scattered pus cells and few lecithin globules.

Follicular prostatitis is due to the infection of different portions of the gland, while the remainder is practically unaffected. This form can often be recognized by palpation on account of the soft areas near the surface. Frequent micturition and pain at the end of miction is often complained of. This is due to inflammation in the posterior urethra kept up by the drainage from the diseased prostate. The secretion in this form is quite characteristic, there being fields of normal appearing secretion surrounded by others that are full of pus cells. More groups or clumps of pus cells are found in this form.

In parenchymatous prostatitis the inflammatory process involves all the secretory structure and we often get a regular enlargement of the gland which feels tense or edematous on palpation. The secretion, which is quite abundant, is full of pus. There may be fever and constitutional symptoms if the process is acute, also difficulty in miction and defecation.

The phlegmonous form may consist of multiple abscesses or a single one destroying a part, or all, of one or both lobes. The pus has been known to follow the cord into the inguinal region into the abdominal cavity and the space of Retzius. There may be an infiltration of urine, gangrene, thrombosis of the prostatic veins, pyemia or death resulting from this condition. Fortunately these cases are not very common, and when to operate is the matter of judgment. Often when the patient is complaining of pain, pressure and fullness in the rectum and perineum with difficulty in urination and defecation, a careful palpation and aspiration will decide the question. This form can result from the stirring up of an old infection, which should be borne in mind.

In examining prostatic secretion we must rely more upon the microscopical characteristics of the secretion than upon the finding of gonococci. Clark in eight cases over a year old found no gonococci by microscope or culture. Saxe in 108 cases found gonococci six months after infection in only 28%.

In the physical examination we consider whether enlarged or atrophic; sensitiveness, which may be absent in the abnormal and present in the normal, but is more often present in the diseased organ; consistency in general and whether there are hard and soft areas. The palpatory signs may all be negative and for a positive diagnosis we must in any event rely upon the microscopical findings. To diagnose and treat prostatitis without the aid of the microscope is impossible.

Very often all the usual prostatic elements, epithelial cells, corpora anylacea and lecithin bodies, are entirely replaced by pus cells, and as we examine the secretion from time to time during the treatment we see a return of these elements. After the gland has once been infected, the secretion will always contain more leucocytes than normal, but the other elements will be present. Be sure you have prostatic secretion to examine and if in doubt repeat the examination.

The principles of treatment are to remove from the diseased gland the products of an inflammatory, round-celled infiltration and stimulate the production of normal tissue, and to inhibit the growth of organisms. This is accomplished by the production of local hyperemia in various ways, which raises the resistance of the tissues. When the natural resistance is strong enough to inhibit the growth of bacteria in the ducts, acini, glandular and periglandular tissue, the prostatitis is cured. If the resistance were strong enough at the time the germs entered the urethra, the disease would not have developed, and in this way we can best explain the immunity of some and the infection in others when exposed to the same source of contagion.

Do not expect any drug to penetrate the prostate gland from the posterior urethra and do good from its germicidal properties. We need an irritant for counterirritation and so get hyperemia, and this accounts for the better results in this condition from nitrate of silver than from the newer and less irritating silver salts.

In treating a prostatitis much patience and time are required and it is well to inform the patient that you will probably only treat him twice a week, but that it will take quite a few weeks before he is well. Do not try to rush with daily treatments, for you will probably get an acute exacerbation of the trouble.

The patient must abstain from intercourse and alcoholics during and for a few weeks after treatment has been stopped, and it is often necessary to forbid bicycle riding, horseback riding and automobiling on account of trauma. Carbonated drinks and condiments should be avoided and the general health looked after.

Massage of the prostate, which is the most important procedure, not only causes a hyperemia, but also an emptying to a certain extent of the gland. At first massage is apt to be painful even when the prostatic inflammation is not acute on account of irritating the wall of the bowel. As soon as the patient becomes accustomed to it the amount of pressure as well as the length of time can be increased. Do not be rough in massaging and never massage an acutely inflamed gland. Often on account of muscular contraction the prostatic fluid will stay in the prostatic urethra or enter the bladder and it is necessary to have the patient urinate to obtain it.

If any urethral stricture is present this should receive treatment, and the use of a sound in the posterior urethra produces hyperemia of the gland to some extent. In the use of drugs I prefer instillations of rather concentrated solutions rather than irrigations with large amounts of weak solutions. Nitrate of silver in from  $\frac{1}{2}$  to 2% solutions causes quite an irritation and localized artificial congestion. About 30 minims is sufficient, and if a Guyon olivary tipped catheter is used it is quite easy to feel the point slip into the posterior urethra. The use of 10 and 20% solutions applied through the posterior endoscope can be used but are seldom necessary. The use of the rectaphore is a great aid and if used for ten or fifteen minutes occasionally has a good effect. During an acute inflammation



it can be used with the water about 116-18° and in the chronic cases it is well to follow this with cold water.

The use of bacterins is often beneficial and autogenous ones are always preferable. The gonococci are difficult to grow, but where there are other organisms, which is often the case, they can quite easily be obtained and be used once in five days in gradually increasing doses. Some care should be used in streptococcus infections, as I have seen quite severe reactions in doses as low as thirty millions.

Do not overtreat these cases, but, on the other hand, do not weary of treatment. When you find the pus very much diminished and the normal prosthetic elements in the secretion, it is wise to stop treatment for a time and see if the condition will not clear up.

## THE DIFFERENTIAL DIAGNOSIS OF LABYRINTHINE AFFECTIONS.

By G. P. WINTERMUTE, M. D., Oakland.

(Continued from Page 474, November Journal.)

*Erosions and fistula* of the labyrinth bony wall occur most frequently from cholesteatoma and their most common site is the prominence of the horizontal semi-circular canal. The sites next in frequency are the promontory and the round and oval windows. However, they can occur in any part of the bony labyrinth. Cases have even been reported when they followed long standing extra-dural abscess and were situated in the inner walls. Among the other causes aside from cholesteatoma are tuberculosis, diabetes, adhesions causing pus retentions, granulations about the windows and polyps. Polyps spring from a rarefying osteitis and the traction put upon their attachment in snaring them has been sufficient to rupture the diseased bone and cause a fistula.

When the erosion first occurs the escape of perilymph causes severe labyrinth symptoms. At such a time, the membranous labyrinth being unaffected, responds normally to all the labyrinth tests excepting the fistula test. The membranous labyrinth then becomes involved and we have the symptoms of a circumscribed irritative process. It may recover at this stage or it may pass on to a circumscribed destructive process, or to a diffuse destructive process of the entire labyrinth. The symptoms vary according to the stage of the process and its termination. The fistula test will vary in its response also accordingly. As long as the membranous labyrinth is intact or only irritated the test will be positive; when the process goes on to destruction the test is negative.

The fistula test is negative too in very exceptional instances when a polyp or mass of cholesteatoma blocks the erosion, and prevents the air being forced through its opening, or when the Eustachian tubes are so patulous that they offer no resistance to the compressed air and allow it to pass freely into the naso pharynx. A positive fistula sign is often feebly present in highly irritated conditions of the labyrinth even when the bony wall is intact. However, the nystagmus produced is not marked as it is both upon compression and aspiration of air when a fistula is present. The fistula test is positive only when the erosion is in the static and dynamic labyrinth.

When it is in the cochlear portion it is negative; but Gelles' test is abnormally pronounced and positive when a fistula is present in the cochlear. The particular location of the erosion may often be diagnosed, using an ascending series of tuning forks in making Gelles' test, when the scotoma of deafness found will correspond with the location of the erosions upon the whorl which corresponds in its tone perception to the tone area of deafness found.

*Fistula of the static and dynamic labyrinthine wall with a normal membranous labyrinth* will present the following signs: Evidence of middle ear suppuration; recent history of an attack of labyrinthine symptoms; Weber to the diseased ear; Rinne negative; Schwabach lengthened; normal reactions to the turning and caloric tests and a positive fistula test. If the fistula is located in the cochlear portion there will be a history of no labyrinthine symptoms excepting tinnitus, the fistula test will be negative but the Gelles test will be abnormally marked.

*In fistula with a circumscribed irritative process in the static and dynamic membranous labyrinth* we have: Middle ear suppuration; Weber to the bad ear; Rinne negative; Schwabach lengthened; no tinnitus; vertigo which is aggravated by head movements; spontaneous nystagmus to the diseased sides, also aggravated by head movement; disturbance of equilibrium; increased duration of the nystagmus reflex from the diseased sides in the turning and caloric tests, and the fistula test positive.

*Fistula with circumscribed irritative process of the cochlear labyrinth* presents: Middle ear suppuration; tinnitus; diminished hearing or scotoma of diminished hearing, all other labyrinthine symptoms absent and normal reactions to the labyrinth tests; Schwabach short, Rinne may be positive, indifferent or negative but it will be short; Weber to the good ear, and Gelles' test is abnormally pronounced.

*Fistula with a circumscribed destructive lesion of the static and dynamic labyrinth* presents: Middle ear suppuration; Weber to the bad ear; Rinne negative; Schwabach lengthened; no tinnitus; history of vertigo but not present excepting in abrupt head movements; spontaneous nystagmus to the well side diminishing in intensity until it disappears; fistula sign negative and the turning and caloric tests will show no, or only partial, reactions. If the entire static and dynamic labyrinth is destroyed the tests will show no reaction. If only one canal is destroyed the other two will react normally and it will give no response.

*Fistula with circumscribed destruction of the cochlear labyrinth* presents: Absence of static labyrinth symptoms; labyrinth tests show normal reactions; tinnitus present until late stages when it disappears; hearing lost entirely in affected ear or scotoma of deafness present, depending upon the extent of the process; Gelles' test is not abnormal, excepting in cases of insular destruction when the air compression may be transmitted to the remaining normal portion and causes a positive reaction.

*Fistula with diffuse destructive labyrinthitis* is identical with labyrinth suppuration. *Circumscribed labyrinthitis without a fistula* occurs less frequently through infection by way of the lymphatics and by extension of an infected thrombus in the blood vessel

from the middle ear. It has, in its various forms, the same symptoms as when associated with a fistula, excepting that the fistula test will always be negative and Gelles' test never abnormally pronounced.

*Diffuse hyperaemia of the labyrinth* occurs frequently at the onset of acute otitis media, when its effects are very transient. It is also sometimes found after radical mastoid operations, the trauma of which will excite it, and in acute exacerbations in cases of chronic otitis media. It is characterized by mild labyrinthine symptoms and heightened irritability and presents the following signs: Hearing decreased, tinnitus, mild vertigo, nystagmus may be to both sides but is more marked to the diseased sides, short duration of the symptoms and complete recovery. The caloric test shows very marked reaction, turning tests show increased reactions from the affected labyrinth, and the fistula test may be feebly positive. It is probable that the fistula test, which is more apt to be positive in cases associated with acute otitis media, responds through the air pressure being converted into the more powerful hydraulic pressure, as the middle ear is full of secretion, and this drives the stapes into the oval windows with sufficient force to create a current in the perilymph and endolymph sufficient to produce the feeble reaction. It has been observed in cases before the perforation of the membrana tympani takes place, and these can hardly be accounted for in any other way.

*Serous labyrinthitis and diffuse suppurative labyrinthitis* will be considered together and contrasted, because in the early stages their symptoms are identical, because serous labyrinthitis may be the precursor of a suppuration developing from it, and because it is important to distinguish them as the former recovers while the latter demands operation. In serous labyrinthitis we have a serous or slightly sero-fibrous exudate into the labyrinth which is absorbed and function is correspondingly restored. In suppurative labyrinthitis we have a virulent suppurative inflammation which always destroys the membranous labyrinth, ends with loss of function, and is very apt to proceed to intra-cranial complications. Suppurative labyrinthitis is more frequent than serous.

#### *Early Irritative Stage.*

##### **Serous Labyrinthitis**

Hearing	Diminished
Tinnitus	Present at times
Vertigo	Occurs in attacks
Spontaneous nystagmus	Marked to affected side, slight to the opposite
Irritability determined by caloric and turning tests	Increased

##### **Suppurative Labyrinthitis**

Diminished
Present at times
Occurs in attacks
Marked to affected side, slight to opposite
Increased

#### *Height of Attack With Onset of Suppuration in Suppurative Cases.*

	<b>Serous Labyrinthitis</b>	<b>Suppurative Labyrinthitis</b>
Hearing	Absent	Absent
Tinnitus	Absent	Absent
Vertigo	Intense	Intense
Spontaneous Nystagmus	Intense to well side	Intense to well side
Irritability	No reaction	No reaction
Headache	Negative	Often positive due to serious meningitis and meningeal irritation which accompany it.
Fever	If present not due to labyrinthitis	Fever present

If there is no fever and headache it is desirable at this time to wait a few days either for the appearance of headache and no signs of returning function in the suppurative cases, or for signs of returning function to clear the diagnosis in the serous cases.

#### *Period of Several Days to Two Weeks After Height of Attack.*

##### **Serous Labyrinthitis**

Hearing	Present and improving
Tinnitus	Present
Vertigo	Only during head movements
Spontaneous nystagmus	To both sides, more marked to the diseased side.
Irritability	Responds to tests
Headache	Absent

##### **Suppurative Labyrinthitis**

Absent
Absent
Only during head movements
More intense to well side
No response
Present

The suppurative cases demand operation as the function is lost and intra-cranial complications are thereby prevented. After exenteration of the labyrinth and drainage of the dura the labyrinth symptoms clear up in a few days. If unoperated the pathological irritation is kept up, the labyrinth symptoms improve much more gradually, and the danger remains for a prolonged period.

\*I am indebted for material in the preparation of this paper to courses with Baran, Alexander and Bondy, and to an admirable series of papers by G. W. Mackenzie who gives full references to original articles.

#### **Discussion.**

Dr. Henry Horn, San Francisco: Dr. Wintermute has so written this paper that discussion is practically impossible. It deals with facts, and facts are hard things to criticize. I know the literature of this complicated subject thoroughly, and nowhere in German or English are the modern aspects of the diagnosis of Labyrinthine Affections so clearly, concisely and, if I can coin a word, so up-to-dately stated as in this paper. In fact there is too much meat in it to digest in a twenty minutes' meal, and I look forward with eagerness to its publication, that we may sit down quietly and put a few hours hard study to its thorough comprehension. The phrasing of the subject is a trifle misleading. The title of Dr. Wintermute's article is Labyrinthine Affections and in his paper he has spoken only of infective processes originating in the middle ear. We can divide labyrinth affections into (a) Infective Processes of the Labyrinth, and (b) The non-infective processes. Under (a) we have 1, the infection of the Labyrinth from the mid-



dle ear, both in acute catarrh and in purulent middle ear troubles. The acute catarrh infections have not been spoken of; they are rare, and are always due to a collateral hyperaemia and not to pressure of the exudate as has so often been thought. The symptoms are the same as in the ordinary first stage of Labyrinthitis. In purulent middle ear diseases which include the class of cases which the speaker has just covered so carefully, we may have a Labyrinthitis due to acute middle ear suppuration, always caused by collateral hyperaemia, whereas the chronic cases always infect the labyrinth through direct bony channels. No disease of the mucous membrane of the middle ear ever gives rise to a suppurative labyrinthitis. It is generally cholesteatoma, tuberculosis scarlatinal, etc. One per cent. of all chronic middle ear suppuration gives rise to a labyrinthitis (Hinsberg 1906). Seventy-five per cent. of post operative meningitis follows from a labyrinth infection not recognized or treated at the time of the operation (Zeroni 1905, 40 cases). There is 15 to 20% mortality from purulent labyrinthitis. In 68 cases of Hinsberg's, he lost none as the direct result of the operation. The labyrinth must be radically opened when we can diagnose a diffuse process, if we can discover a fistula or even if the horizontal canal shines as a dark mass through the bone. An exception must always be made if some hearing remain, for here the trouble has been encapsulated and a further operation is unnecessary. One side of the subject not spoken of is the infection of the labyrinth from the meninges. This is especially common in epidemic cerebro spinal meningitis where 10% of the survivors are absolutely deaf. A common source of infection of the labyrinth is through the blood, where the trouble is usually due to secondary syphilis, but whether it is here a labyrinthitis or a neuritis acustica is unknown. (b) Of the non-infective processes which lead to disease of the Labyrinth, I must mention first of all Otosklerose and secondary bleeding and emboli which occur in Leukaemia, pernicious anaemia purpura haemorrhagica, nephritis, etc.

Dr. C. F. Welty, San Francisco: This paper of Dr. Wintermute's covers so many different conditions that it is more or less difficult to make criticism. However, there are two points that I wish to speak of particularly. In the first place, a single semi-circular canal cannot be destroyed without destroying the entire chain. In healthy canals, the characteristic reaction can be produced by putting the patient in the proper position and applying the test. In the test of the patient in the revolving chair that the doctor referred to, he said he had a nystagmus to one side of 40", and to the other side of 20". This finding is in keeping with destroyed semi-circular canals—it does not make any difference if the patient's head is on the side or not. The 40" reaction is from the ampullary end and the 20" reaction is from the non-ampullary end—and in this case in question from the same canal. In the event of a good canal on this side, he would respond to the caloric reaction, which I believe is the best. In a differential diagnosis between serous and purulent labyrinthitis, the principal point of difference is that in serous labyrinthitis you do have rests of hearing while in the purulent you do not. In serous, no fever; in purulent, fever, and by the way, the fever is produced by the infection of the meninges, as the canals are not sufficiently large to contain pus enough to produce fever. Fever may also be produced by wound infection, intestinal intoxication and other existing maladies. They must be excluded before any importance can be attached to the findings. The differential point of diagnosis is of the utmost importance because on the one hand your patient may die if not operated, and on the other side a useful ear should not be destroyed. Again, your diagnosis may be so complicated that an absolute finding will be out of the question. In such instances I am inclined to the operative end rather than non-operative.

Dr. G. P. Wintermute, Oakland: Dr. Welty, in our talks, had told me about the matter of differen-

tiating the serous from the suppurative cases by the rests of hearing and he gave Neuman as the authority. He is the best authority in the world and I am anxious to know more about it. The point he made is that you have arrests in hearing in serous cases without symptoms of meningeal irritation, headache and fever. You may have some fever, of course, from the middle ear, but I do not understand the reason for merely arrests of hearing in the serous cases. One other point Dr. Welty mentioned, in regard to the circumscribed process being limited to one canal, and I think the criticism is a good one, but in the case in which I tried it I depended upon turning tests alone. The horizontal turning nystagmus was one-half the duration to the affected side of what it was to the opposite, while the vertical and rotary nystagmus was of the same duration to both sides. I think it was a marked case. I was surprised when I got the result but the fact that the horizontal nystagmus reacted only one-half of that to the opposite side tended to show that the process was circumscribed to that horizontal canal.

(Concluded.)

## THE EYE IN ITS SEMEIOLOGICAL ASPECT.\*

By WM. F. BLAKE, M. D.

The field of investigation indicated in the title of this paper is a broad one and its full consideration would carry one so far afield that I am relieved that the presentation before this state meeting of two other papers, one on the relation of the eye to general medicine, the other on the surgical significance of papilloedema, will permit the restriction of this article to a much narrower compass.

I shall then confine myself to a consideration of eye palsies, corneal anesthesia, subjective changes in the field for form and color and early changes in the disc that are of help in the early diagnosis of intracranial growth and often of very definite aid to exact localization. I shall also briefly consider in passing implication of cranial nerves other than those strictly related to the eye when their involvement seemed a part of the clinical picture and in so far an aid to its interpretation.

Since new growths in certain parts of the brain are less productive of general localizing symptoms and of cranial nerve signs than in other more outspoken localities, I shall leave out of consideration these so-called silent areas, and consider only such subdivisions of the brain and brain stem as offer pathological signs coming particularly within the sphere of observation of the ophthalmologist and aurist. Closely correlated with any discussion of the pathology of the brain must be a reasonable familiarity with the laboratory and clinical studies of its anatomical divisions and of its functional localization. Any discussion of these problems is outside the province of this paper and is moreover unnecessary.

The comparatively recent investigation on blood pressure, cerebral circulation and cerebral localization of Sherrington and Hall, of Horsley, of Crile, and the publications of work from the Hunterian Laboratory at Johns Hopkins can be found in the files of the English and American Journals of

\* Read at the Forty-first Annual Meeting, State Medical Society, Santa Barbara, April, 1911.

Physiology, in Brain, in the Lancet and British Medical Journal, and in our best-known American publications. These journals are so accessible in private and in county medical libraries that even a brief summary of recent contributions to our knowledge of brain physiology and anatomy would here be superfluous.

You are familiar, too, with the physiological fact of the excretion of cerebro-spinal fluid by the ependymal cells lining the ventricles and covering the chorioid plexus and of its exit from the ventricle by way of foramina of Megendie and Luschka into the subarchnoid space, in the region of the roof and lateral recess of the fourth ventricle, also its subsequent escape into the sinuses by way of the pachionian bodies and thence into the general circulation. Cushing has pointed out that there must be a means of escape of fluid directly into the veins of the head by minute openings, for in some of the lower vertebrates arachnoid villae are not found. (These openings have, however, never been satisfactorily demonstrated.)

The presence, too, of the relatively large lakes of cerebro-spinal fluid in the basal cisternae and of the interpeduncula cistern in particular with its direct connection with the vaginal sheath of the optic nerve, will readily suggest to you the facility with which, under increase of intracranial pressure, fluid held under tension in the sheath of the nerve becomes the principal agent in the strangulation of the nerve head and the production of choked disc. The fact, too, that the brain is grossly divided into compartments by the stout dural membranes, the falx cerebri and the tentorium, will suggest itself to you as an explanation of the fact that a relatively large growth may develop in one part of the brain and remain for a long time without producing, by pressure, disturbances of motor or sensory of associated tracts in a distant lobe.

Leaving aside these considerations of the gross anatomy of the brain, we will briefly consider some ocular signs supposedly characteristic of and an aid to the definite localization of certain cerebral lesions.

Since an intracranial growth of a hard, or an infiltrating and destructive character, may long exist in a silent part of the brain without causing symptoms permitting of definite diagnosis, I have thought it best to consider those parts of the brain where lesions give early and definite eye symptoms. I shall then leave out of consideration tumors of the parietal and of the temporal lobe, of the motor areas, of the frontal lobe and of the optic thalamus. Even in these localities there is much that is of interest to us as oculists and aurists, when we recall the incidence of mind blindness and sensory aphasia in lesions of the parietal and temporal lobes, of motor aphasia in lesion of the motor area, disturbances of speech mechanism when the posterior part of frontal lobe is affected, and nystagmus and perhaps hemianopsia when the optic thalamus is the site of tumor. There is left then for more detailed consideration tumors of the occipital lobe, of the corpora quadrigemina and cerebral peduncles, of the cerebellum, of the pituitary body and pons and medulla.

In tumors of the occipital lobe, in addition to the general signs of tumor, as headache, dizziness, nausea and prostration, we have these frequent though unfortunately not pathognomonic signs which are early developing hemianopsia, half blindness for colors, hemiachromatopsia, sensations of light and visual hallucinations in blind fields and in addition the absence of Wernicke's hemianopic pupillary sign. I have said these signs are not pathognomonic, for published cases show that hemianopsia may follow a lesion of the optic tract anywhere from the chiasm to the geniculate body and from there through the optic radiations to the visual cortex. Optic aphasia is frequent in tumor of this locality, and is perhaps explained by injury from pressure upon or infiltration of the association tracts between the occipital lobe and the first temporal convolution.

In tumors of the cerebellum there are in addition to the general signs of tumor an almost constant association of choked disc of high degree and of very rapid onset. As suggested by Paton, this may be due to the position of the tumor and the frequency with which foramen openings in the roof of the fourth ventricle are occluded or the general lumen of this ventricle is obliterated by pressure, direct or transmitted. Headache is usually severe, constant and accompanied by vertigo and vomiting of severe type. The cerebellar attitude with ear on the side of lesion to the corresponding shoulder, the chin pointing away from side of lesion, is considered a sign of slight significance by many neurologists, while others credit it with considerable value. The gait is that of an intoxicated person. The ataxia in contradistinction to that of tabes is not increased by closing the eyes. It is not due to faulty sensory impressions from the outside, but is some defect in the central regulating mechanism of co-ordination. Ataxia is more marked in the upper than the lower limbs and usually confined to the homolateral side.

Additional eye symptoms are, first, nystagmus, which is characterized by being most marked when the patient looks to the side of lesion, in contradistinction to pure labyrinthine nystagmus; by being rather coarse and slow in movement and is often more marked in homolateral eye. Second, abducent weakness; sixth nerve implication is very common in intracranial growths in widely distant parts of the brain (its great length making it particularly exposed to the influence of pressure); however, it is a very common symptom in tumors of cerebellum.

There is frequently present, too, a dissociated paresis of the opposite internal rectus so that while the eyes may strongly converge, associated later movement to side of the involved sixth is poor and from this dissociation of movement there frequently results another symptom of importance, a secondary conjugate deviation of the eyes away from side of lesion. These signs, I take it, could be caused by growth in or pressure on the associated tracts (Charts) in the peduncles of the cerebellum or by transmitted pressure to the corpora Quadrigemina and so indirectly to the nuclei of the third and fourth nerves lying



beneath these structures, in an instance where the tumor is situated far forward in the vermis.

In addition to these signs we have the particularly intense and rapidly oncoming choked disc, which is so rapid in onset and so intense in character that Mr. Marcus Gunn considers it strongly indicative of cerebella localization, even in the absence of other definite signs. What I have said of tumors of the cerebellum may give the impression that they are easy of localization, whereas the contrary is most true. It is one thing to make a diagnosis of a growth within the mass of the cerebellum, it is quite another thing to definitely locate it on one or the other side. It is to be hoped that the investigations of Barany of the phenomena of nystagmus will be of substantial aid in cerebella localization. These, briefly, are as follows: (a) If a normal man has a rotary vestibula nystagmus to the right side, he falls with closed eyes and feet together to the left. If head is turned 90% to the right, he falls forward; if turned 90% to left, he falls backward. In cases of cerebellar lesion with nystagmus the direction of falling is not influenced by the position of the head, and if in such a case we produce an experimental nystagmus, the falling which accompanies the nystagmus does not follow the type found in a normal ear. (b) If we let a normal individual with closed eyes touch with his forefinger or great toe some object held in front of him, and then with his eyes still closed withdraw the finger or toe and again point, he will, as a rule, point correctly. In cases of a cerebellar tumor or any lesion that implicates the association tracts, the patient in pointing will err to the side of his lesion.

Where the tumor is upon the base of the brain, in the cerebellar pontile recess, its exact locality may be more readily diagnosticated. Tumors of the cerebellar pontile angle may, depending upon their position, give symptoms chiefly referable to the cranial nerves, to the cerebellar peduncles, or to compression of the pons. Since a discussion of all three conditions would carry me too far afield, I shall omit the last two conditions and speak briefly of the first location (Chart). A momentary consideration of the nerve trunks and nuclei lying near or coming from the region, and particularly the exposed condition of the fifth, sixth, seventh and eighth nerves, will account for far the most common and pronounced signs of tumor of this region. Beginning with the fifth nerve we find anesthesia of the face on side of tumor, and where this is so slight as to be uncertain we may perhaps get corneal anesthesia and absence of corneal reflex. Weakness of the sixth nerve on the same side will be shown, when slight, by a nystagmus when the eyes are turned toward the suspected side and when pressure paresis is more pronounced by an internal squint, the eye looking away from the side of the tumor.

Weakness of the seventh nerve will show itself in a smoothing out of the lines of the face, by a lessened power of closing the eyelids against resistance and by impairment of expression. Pressure on the cochlear division of the eighth nerve may cause tinnitus and partial or complete nerve deafness, while vertigo and

incoordination will result from involvement of the vestibular branch.

The ninth and tenth and twelfth nerves more often escape, though there are many proved cases in the literature presenting symptoms of difficulty of swallowing and hoarseness of the voice, of vagal attacks and paralysis of one side of the tongue.

Tumors of corpora Quadrigemina. On account of anatomical structure ocular palsies are usually among the early manifestations of tumor in this part of the brain. The nuclei of the oculomotor and fourth nerves lie near the aqueduct of Sylvius, and therefore pressure upon these nuclei or direct implication by tumor growths results in paralysis of muscles of the eye on both sides. Disturbances of hearing may also be expected and may be explained by the implication of the posterior colliculus of the corpora quadrigemina.

Internal ophthalmoplegia is not a common symptom and is probably explained by the supposed position of the center for the ciliary muscle and the sphincter of the iris in the part supplying the superior rectus and inferior oblique. Evidence is strong that paralysis of the associated lateral movements of the eyeball is indicative of a lesion of the posterior longitudinal bundle near the sixth nucleus. Speller believes, from clinical and pathological evidence of the study of five cases, that persistent palsy of associated upward or downward movement is indicative of lesion near the aqueduct of Sylvius in the corpora Quadrigemina, and paralysis of lateral associated movements is to be explained by involvement of both post longitudinal bundles. If we assume that the nuclei of the superior rectus and inferior oblique muscles are in posterior part of oculomotor nucleus, we can understand why marked impairment of upward movement is present when other ocular movements are perfect. Personally I have never had the opportunity of seeing a case of tumor in this locality, though I have in my care at present a patient with ptosis of the left lid dissociated upward and downward eye movement, together with a double internal ophthalmoplegia. I believe this patient's symptoms are due to a small hemorrhage in the region of the fourth and third nuclei, though the lesion must extend somewhat more anteriorly than is usual in tumors of their region.

(To be concluded in January Journal.)

## MINORITY REPORT ON CONTRACT PRACTICE.

Submitted by D. A. HODGHEAD, M. D., San Francisco.  
*To the Officers and Members of the State Medical Society:*

The question of contract practice has never been fully discussed in the medical organizations, nor has it ever been fairly presented by the medical journals. I shall not impose upon you by endeavoring to present all of the arguments, pro and con, but in a condensed way to give some views in defense of contract practice.

This practice is engaged in by the Army, the Navy, and the Pension Bureau of the United States government; by all state governments in their care of the insane; by all county governments in their

care of the indigent; by cities in caring for the indigent and in their emergency hospital service; by railroads, steamship companies, mining corporations, lumber corporations, commercial organizations, life insurance companies, accident and health insurance, and by various lodges and smaller organizations.

The profession, as represented by the medical societies, has endeavored to restrict, or to prohibit, contract work only so far as engaged in by lodges and a few other small organizations. Such a remedy would be about as effective as amputation of the small toe in a case of gangrene that extended to the thigh.

In many cases of contract practice the young members of the profession, just beginning, have been benefited and enabled to continue their work by reason of the fact that they would be assured at least a small income.

The interests of the people are large and are to be considered, as well as those of the profession.

Many a man can easily afford to pay his one dollar per month for protection in case of sickness or accident, who would not be able to meet a large bill for medical or surgical services, or for hospital care should he be so unfortunate as to require it.

Another point is that this practice renders a poor man, to a degree, independent; his medical bills are paid; he is at liberty to call upon his physician at any time and under any circumstances, thus often avoiding what might have been a serious illness. Laboring men, who have no homes and no one to care for them when sickness comes, are, by this practice, protected, whereas they would otherwise become, in many instances, a public charge.

Another thing to be considered is that most of the men who hold contracts for protection in case of sickness or accident, are poor men who would not be able to meet great bills from a medical practitioner; therefore the caring for these men by a system of contract practice does not draw upon, to any great degree, the receipts of the regular practitioners.

It has often been asserted that contract practice is cheap practice. This is not a fact. Any one who will sit down and carefully examine, by statistics, the receipts of the medical profession, and the payments made by the population at large to the profession, can soon satisfy himself that the average citizen does not pay one dollar per month to the medical profession for services, nor does the medical profession receive from the public this amount of money.

There is another side to this question also which should be at least mentioned. The physician who has contracted to care for any one in case of illness is always on the alert to keep that particular person from becoming ill, and in case of illness or accident, it is to the advantage of the physician to restore his patient as rapidly as possible. This same incentive, I am sorry to say, does not stimulate every physician in the profession. All of you know how many unnecessary operations are performed; how many unnecessary visits are made; how much unnecessary medicine is prescribed, all for the sake of increasing the income of the physician. In other words, with many physicians the public is his legitimate prey; he makes out of that public all he can.

His practice is not only to diagnose the case before him, but to size up at the same time the length of his purse. In contract practice this temptation is removed, and there is no incentive to engage in any but honest and effective work.

We may close this condensed statement by paraphrasing the words of the great Teacher who said that "the Sabbath was made for man; not man for the Sabbath"; the medical profession exists for the people, and not the people for the medical profession.\*

(\* The above report has been held back, owing to lack of space. It should have been published along with the majority report, June, 1911.)

## TENTATIVE CLASSIFICATION OF EXCEPTIONAL CHILDREN.

By MAXIMILIAN P. E. GROSZMANN, Pd. D.,  
Plainfield, N. J., May, 1909, Educational Director of the National Association for the Study and Education of Exceptional Children.

### A. Normal Children.

(Those who are in accord with the norm, or standard, of human nature.)

#### 1. Typical Children.

(Those who conform to the average human type, representing the present stage of civilization.)

#### 2. Pseudo-atypical Children.

(Those who only seemingly deviate from the average human type.)

##### a. Children Whose Progress in School was hindered by:

1. Change of schools;
2. Slower rate of development, without atypical retardation;
3. Temporary illness;
4. Slight physical difficulties, such as lameness and minor deformities, slightly impaired vision and hearing, adenoid vegetations, etc. This last class is similar to Group 2, of the Pathological Classes, Sub-normal Group; only that it represents retarded instead of arrested development.

##### b. Children of Unusually Rapid Development, without genuine (pathological) precocity ("bright" children).

##### c. Children Who are Difficult of Management. Naughty, troublesome, spoiled children, without genuine perversity.

##### d. Neglected Children.

Pseudo-atypical children may be rapidly restored to normal equilibrium.

#### 3. Atypical Children Proper.

(Those who deviate from the average human type.)

Hereditary, congenital, and environmental causes.

##### a. Neurotic and Neurasthenic Children.

Over-stimulation and precocity. Genius. Irritability. Excessive imagination and lack of mental and emotional poise. Hysteria (Dementia Praecox). Lack of concentration. Negativism. Contrariness. Perverse tendencies. Sexual precocity. Fears and obsessions. Defective inhibition. Tic. Motor disturbances.



Vasomotor, sensory, and trophic disturbances.

b. Children of Pathologically Retarded Development.

Impaired conceptual ability due to retarded brain development. Physiological retardation of growth rate. Special physical causes: Chronic catarrh, chronic difficulties of nutrition, serious chronic affections of vision and hearing, venereal infection, etc.

Any of these classes, through neglect or adverse environmental influences, may drop down in the scale of development, into lower classes. In other words, the individuals composing them, may lose their normal characteristics and degenerate into permanent defectiveness. It is a matter of potentials and their direction. On the other hand, having the normal potentials, atypical and pseudo-atypical children may be restored to normal equilibrium.

B. Subnormal Children.

(Those whose potentials are incomplete, or underdeveloped.)

1. Defective Children.

Hereditary and congenital causes.

Epileptics, blind, deaf and dumb, deformed, paralytics, crippled, etc.

These children can never attain the perfect norm of human nature, as their potentials are incomplete.

2. Children of Arrested Development.

(Acquired abnormality or defectiveness.)

a. Pathological Classes.

Children born apparently normal, but having their development checked by:

1. Hereditary causes, manifesting themselves at certain developmental periods;
2. Special causes, as diseases, fright, accidents, etc.

The arrest of development may be only partial, as in the case of children deformed by accident; then, there will be mainly a condition of incompleteness, as in Group 1, Defective Children.

b. Submerged Classes.

Environmental influences have prevented them from attaining full maturity.

Children of arrested development will remain essentially subnormal, no matter how well they may be educated within their limits.

3. Children of Rudimentary or Atavistic Development.

The primitive type, representing mental, moral and social instincts and activities on the savage, barbarian, or generally uncivilized level.

Primitive races.

Atavistic individuals. These approach the abnormal level. They represent a reversion of instincts and capacities in spite of being born from apparently normal parents.

Groups A and B Constitute Human Society.

C. Abnormal Children.

(Those who deviate from the norm, or standard, of human nature.)

Hereditary and congenital causes.

Cretins, cretinoids; microcephalics, macrocephalics, hydrocephalics; idiots, idio-imbeciles, imbeciles and feeble-minded; insane; criminals; moral imbeciles and moral pervers.

Abnormal children stand outside of human society and require custodial or institutional care permanently.

DEFINITIONS.

(Standard Dictionary.)

Norm: A rule or authoritative standard.

Normal: According to an established law or principle; conforming to a type or standard; regular or natural.

Abnormal: Deviating from the natural structure, condition, or course; unnatural.

Type: One of a class or group of objects that embodies the characteristic of the group or class; an example, model, representative, or pattern, as of an age, a school, or a stage of civilization.

Typical: Having the nature or character of a type.

PHYSICAL TEST.

Test Cards: Anatomical.

Name of Child:.....Sex:.....Male

Body Measurements:.....Born:.....

Date:

Height, standing.....

Height, sitting.....

Weight .....

Girth, neck.....

Girth, r. arm.....

Girth, r. armbent.....

Girth, l. arm.....

Girth, l. armbent.....

Girth, chest defl.....

Girth, chest infl.....

Diam., chest a. p.....

Diam., chest trans.....

Lung capacity.....

Shoulders, diam.....

Hips, diameter.....

Girth, hips.....

Girth, abdomen .....

Girth, r. thigh.....

Girth, l. thigh.....

Girth, r. calf.....

Girth, l. calf.....

Girth, head.....

Head, a. p. diam.....

Temperature .....

Pulse .....

Respiration .....

Head, trans. diam.....

Tests and Examinations.

Anatomical.

Skeleton.

Name of Child:.....Date:.....

.....

Skull, form (cf. measurements, and diagram chart)

Normal: mongol; microcephalic; macrocephalic; hydrocephalic; other peculiarities:

Chest: (cf. measurements)  
 Pigeon-breasted? .....  
 Spine:  
 Scoliosis? .....  
 Shoulders: .....  
 Round? .....  
 Asymetry? r:.....l:.....  
 Arms:  
 Length: .....  
 Rotch's Wrist tests: (over).....  
 Hands: r:.....l:.....  
 Number of fingers: r:.....l:.....  
 Position of fingers: r:.....l:.....  
 Legs:  
 Length: r:.....l:.....  
 Traces of hip disease?.....  
 Genu valgum?.....  
 Genu varum?.....  
 Arch of foot: r:.....l:.....  
 Number of toes: r:.....l:.....  
 Position of toes: r:.....l:.....  
 Talipes calcaneus:.....  
 Talipes equinus:.....  
 Talipes valgus:.....  
 Talipes varus:.....  
 Other observations:

#### Tests and Observations.

Musculature? ..... Characteristics, &c.  
 Anatomical.

Name of Child:.....Date:.....  
 Peculiarities of Face:  
 Symmetry of Asymmetry:  
 Nose, Form:  
 Nates:  
 Turbinates:  
 Mouth, Lips:  
 Tongue:  
 Teeth:  
 Palatal arch:  
 Uvula:  
 Tonsils:  
 Pharynx:  
 Size:  
 Ears, Form:  
 Size:  
 Position:  
 Eyes, Form:  
 Size:  
 Position:  
 Color:  
 Lashes:  
 Brows:  
 Forehead, Form:  
 Size:  
 Wrinkles:  
 Skin, Color:  
 Condition:  
 Mammae: .....  
 Abdomen: .....  
 Genital Organs:.....  
 Immature? .....  
 Prepubescent? .....  
 Pubescent? .....  
 Adolescent? .....  
 Pubic Hair:.....  
 Adhesions? .....  
 Irregularities: .....  
 Malformations: .....  
 Special Characteristics:.....  
 Remarks:

#### Physiological Tests.

Name of Child:.....Date:.....  
 Special Senses:  
 Vision:  
 Distance:  
 Acuteness:  
 Field:  
 Focus:  
 Astigmatism:  
 Color: (\*)  
 Reading Center:

Hearing: (\*)  
 Distance:  
 Direction:  
 Accuracy:  
 Speech Center:  
 Tone perception:  
 Taste:  
 Sour:  
 Sweet:  
 Bitter:  
 Foods:  
 Non-foods:  
 Special Tests of acuteness:  
 Smell:  
 Foods:  
 Flowers:  
 Perfumes:  
 Various Substances:  
 Special tests:  
 Touch: (also indirect)  
 Soft and hard:  
 Materials:  
 Forms:  
 Tactual memory:  
 Special tests:

(\*) Cf. special tests.

#### Physiological Tests. II.

Name of Child:.....Date:.....  
 Special senses, cont.  
 Temperature:  
 Warm:  
 Cold:  
 Acuteness:  
 Muscular Sense:  
 Graduated Weight:  
 Muscular memory:  
 Muscular (weights identified):  
 Weight illusions:  
 Weight Draw line:  
 Walk board:  
 Stand on r. foot: (balance)  
 Stand on l. foot: (balance)  
 Throw ball:  
 Catch ball:  
 Tie Shoes:  
 Untie shoes:  
 Thread needles:  
 Grip (dynamometer):  
 Localization: find hidden and unhidden objects:  
 Find way (blindfolded)  
 Chorea Tests:  
 Front touch:  
 Overhead touch:  
 Back touch:  
 Knee jerk:  
 Habit spasms:  
 Neuroscs:  
 (special chart)  
 Speech, articulation:  
 Fluency:  
 Structure of language:  
 Aphasia:  
 Stammering:  
 Stuttering:  
 Development:  
 Dexterity:  
 Gait:  
 Appetites:  
 Digestion:  
 Heart:  
 Lungs:  
 Urination:  
 Tests of urine, blood, and feces on different sheets.

#### Grossmann School, N. A. S. E. E. C.—Pathological Disease Record.

Name of Child:.....  
 Date: Diagnosis: Physician: Treatment: History:  
 Name of Child:.....Regimen and Diet.  
 No. Nature of Treatment Purpose  
 Date Ch. of History Disc.



**Tests and Examinations.**

Name of Child.....  
 Classification.....Neuroses  
 Dates:           Diagnostic Remarks:           Name of Examiner.

**Medical Examination.**

Name of Child:.....Born:.....  
 Date:.....  
 Physician:.....  
 General Appearance:.....  
 Nutrition:.....  
 Head:.....  
 Eyes:.....  
   Pupillary Reactions:.....  
     Light:.....  
     Accom.:.....  
   Nystagmus:.....  
   Squint:.....  
 Ears:.....  
   Malformation:.....  
   Discharge:.....  
   Hearing:.....  
 Nose:.....  
 Mouth:.....  
   Teeth:.....  
   Tongue:.....  
   Palat. Arch:.....  
 Tonsils and Pharynx:.....  
 Neck:.....  
   Thyroid and Lymph Gls.:.....  
 Glands:.....  
   Inguinal:.....  
   Axillary:.....  
   Epitrochlear:.....  
 Chest:.....  
   Deformities:.....  
   Heart:.....  
   Lungs:.....  
   Spine:.....  
     Deformities:.....  
 Abdomen:.....  
   Contour:.....  
   Liver:.....  
   Spleen:.....  
   Tumor:.....  
 Hernia:.....  
 Genitals:.....  
   Prepuce:.....  
   Testicles:.....  
   Malform:.....  
   Discharge:.....  
   Pubic Hair:.....  
 Extremities:.....  
   Kneejerk:.....  
   Ankle clonus:.....  
   Babinski ataxia:.....  
   Tremor:.....  
   Convuls. movem.:.....  
   Gait and station:.....  
   Prehens.:.....  
   Deform.:.....

**PROCEEDINGS OF THE SAN FRANCISCO COUNTY MEDICAL SOCIETY.**

During the month of October the following meetings were held:

**Section on Medicine, Tuesday, Oct. 3rd, 1911.**

- 1—Salvarsan as a Nerve Tonic and Alterative. Douglass W. Montgomery. Discussed by Drs. Ebricht, Power and Montgomery.
- 2—Leukemia in Children. Wm. Fitch Cheney. Discussed by Drs. Oliver, Porter and Cheney.

**General Section, Tuesday, Oct. 10th, 1911**

- 1—A Resume of the Work of the State Food and Drug Laboratory. Prof. M. E. Jaffa. Discussed by Drs. Snow, Eaton, Rosenstirn, Schmitt and Kingwell.
- 2—Presentation of a Case of Amyotrophic Lateral Sclerosis. H. C. McClenahan.

3—Myopathies. Langley Porter. Discussion by Drs. McClenahan, Hunkin and Porter.

4—Therapeutics of Radium. E. O. Jellinek. Discussion by Drs. Meininger, Rosenstirn, Sherman, Tait, Jellinek.

**Surgical Section, Tuesday, October 17th, 1911.**

1—Demonstration of a Case. Harrington B. Graham.

2—Demonstrations. Henry Myer. (a) Demonstration of Large Kidney. (b) Demonstration of a New Instrument for Removal of Pedunculated Tumors from Bladder. Discussed by Drs. Krotoszyner, Vecki and Meyer.

3—A Suggestion in the Radical Treatment of Rectal Prolapse. Dudley Tait. Discussed by Drs. Zobel, Newman, Tait.

4—Nephrectomy in a Case of Bilateral Pyonephrosis. Martin Krotoszyner.

5—Demonstration of Multiple Primary Tumors and Mixed Malignant Tumors. Ernest C. Dickson. Discussed by Drs. Ophuls and Dickson.

**Eye, Ear, Nose and Throat Section, Tuesday, Oct. 24, 1911.**

1—Report of a Case of Adenoid Hemorrhage with the Use of Thrombokinas. Grant Selfridge. Discussed by Drs. Tait, Graham, Welty, Molgaard, Sumner, Selfridge.

2—Demonstration of Cases. Percy Sumner. Discussed by Drs. Lucchetti, Kingwell, Green, Molgaard, Sumner.

3—Physiology of the Labyrinth. Harrington B. Graham.

**Urological Section, Tuesday, Oct. 31st, 1911.**

1—Permanent Suprapubic Drainage of the Bladder without Leakage. (Demonstration of Patient.) Henry Meyer. Discussed by Drs. Rigdon, Rosenstirn, Spencer and Meyer.

2—Demonstration. W. S. Johnson. (a) Cyst of Kidney. (b) Stone in Kidney. Discussed by Drs. Rigdon, Rosenstirn, Krotoszyner and Johnson.

3—Demonstration of Rare Kidney Specimens. Martin Krotoszyner.

**Salvarsan as a Nerve Tonic and Alterative.\***

By DOUGLASS W. MONTGOMERY, M. D., San Francisco.

Since the fall of 1907 I have been, from time to time, consulted for cutaneous symptoms by a neurosthenic, who first came on account of an erythematous eczema of the face and hands, that quickly cleared up under appropriate measures. Like many of his class he became obsessed with the idea that he had syphilis, and the agitation in regard to salvarsan shook his ideas into acts, and he came to the city resolved to receive a treatment. He told me that although he had just had a Wassermann test of his blood by a well known man, that had turned out negative, he, nevertheless, was as firmly convinced as ever that he was suffering from syphilis. I went over his history and made a physical examination, as I had done previously, and found nothing to justify such a diagnosis. The patient related some curious sexual adventures, but said he never had had connection. There was no history of a primary sore, or of any constitutional symptoms of lues. and, although I had examined him from time to time during a number of years, I had never seen any syphilitic lesions. Under the circumstances I refused to give him salvarsan, but referred him for the treatment of the headaches and pains in the limbs, from which he suffered severely, to a much respected man on internal medicine. Besides the headaches and the pains in the limbs, the patient always looked in a poor state of health, without, however, showing any decided cachexia.

\* Read before the San Francisco County Medical Society, October 3, 1911.

He had hardly disappeared from my office when he turned up again, and said that he had been examined, and the physician found nothing to suggest syphilis, but said that possibly a Wassermann test of the spinal fluid might show a positive reaction. I advised, under the circumstances, further general treatment by an internist. In a few days my amiable and insistent friend came again, saying that he had in the meantime consulted three other men, two of whom had refused to give him salvarsan. The third, however, had the necessary complaisance. Since the injection, that had, by the way, been given intravenously, his headaches and the pains in his limbs had disappeared. He looked in excellent condition, brighter and better in every respect than I had ever seen him before. I tried to make it clear to him that even the disappearance of his symptoms did not prove that his troubles had been caused by syphilis. He, of course, remained unconvinced, and exhibited for my contemplation the usual, to the lay mind, irrefutable argument that what he was after were results, and that the disappearance of the headaches and the pains in the limbs was good enough evidence for him. The immediate occasion of this visit, however, was one of the most extensive herpetic eruptions of the glans penis, sulcus, and inner surface of the prepuce, that I have ever seen. He also had slight herpes of the mouth. He had received the salvarsan injection March 17th, and this herpes had appeared June 18th, three months afterwards. The severity of the herpes was the only thing that led me to conjecture a connection between the administration of salvarsan and the outbreak of the eruption. The connection between the administration of salvarsan and the improvement of the patient's general condition admitted, however, of no reasonable doubt. He had had the general appearance of an invalid, and had suffered from headache and pains in the limbs for years, and now he was free.

There are, it is true, two other ways of explaining the improvement in this case. It might be held that it was not due to the salvarsan at all, but either to "lavage of the blood," or to suggestion. Cure by suggestion has frequently been noted in patients of this class. As far as lavage of the blood is concerned it undoubtedly is capable of sweeping out of the blood many deleterious substances. It is doubtful, however, if either suggestion or lavage would account for all the results in this case, and we do know that salvarsan does act as a powerful tonic, notably in malignant syphilis, and to deny it all effect here would leave without explanation the occurrence of the herpes. This was a definite disturbance directly connected with the nervous system on which we know arsenic to have a powerful influence.

On July 18th, four months after the injection of salvarsan, the patient wrote me, stating that the old symptoms of headache and pains in the limbs had reappeared, and furthermore that he had severe itching and a patchy rash of the back and shoulders. This eruption was probably a seborrheic, and may have been remotely connected with the salvarsan injection, of which more hereafter.

The case presented three interesting points:

- (1) The disappearance of the headaches and the pains in the limbs;
- (2) The vast improvement in the general health; and
- (3) The occurrence of a most severe attack of herpes progenitalis.

There is no doubt in my mind that the patient did not have syphilis, and, therefore, that the nervous symptoms he showed were not from syphilis. If it was true that the patient did not have syphilis, then the clearing up of his headaches after giving salvarsan was not due to the antileptic action of the drug, and if not, then the improvement in the patient's condition takes on, not a lessened, but an added interest.

Arsenic has a decided influence on the nervous system. This is shown as well by the therapeutic effects that we desire to produce by it, as through its by-effects. Of late years these by-effects have assumed great importance because of the degenerations produced by atoxyl and arsacetin on the optic nerve, causing, in many instances, amaurosis. Salvarsan itself, though wonderfully less toxic than either atoxyl or arsacetin, yet seems to have a special affinity for the auditory nerve, causing occasionally either temporary or permanent deafness. Some instances of diminished vision or permanent blindness and paralysis, or paresis of other nerves, following its use, have also been attributed to it. It must be remembered that it is only a step between beneficent stimulation and overaction. And it is to the beneficent stimulation of the nervous system and of the epithelial tissues, toward both of which arsenic is organotropic, that we owe the wonderful tonic effects of this drug.

To return to the present case: The man was in a low state of health, and pursued an underpaid and exigent occupation. His nervous system was in a morbid state as shown by his headaches, his pains, his illusions in regard to syphilis, and some curious ways of satisfying his sexual appetite. After an injection of salvarsan, the whole complexion of the man was changed. But while toning up his nervous system it may be inferred that it made it more susceptible to other stimulations, and therefore an ordinary herpetogenic infection, as a "cold" or influenza, that ordinarily would have passed off without causing any, or at most only a slight herpes, gave him a severe attack.

Another interesting feature of this man's case was the length of time the salvarsan influenced his nutrition. He got his salvarsan injection on March 17, and his letter telling me of the recurrence of his headaches and pains in the limbs was written July 18th, four months afterwards.

This is in accord with what some observers assert in regard to the slow excretion of the drug. As the drug slowly left this man's body, his nervous system gradually sank to its former level, and his headaches, pains in the limbs, and the old worries about his sexual apparatus returned. The outbreak of the itchy eruption on his back is interesting in this connection. It will be remembered that he first applied to me on account of an eczema of the face and hands. When I saw him shortly after receiving his injection with salvarsan his skin looked much better than I had ever seen it, and this improvement was in perfect accord with what we know of the affinity of arsenic for the epithelial structures. When the Salvarsan was excreted, the epithelial cells, as well as the nervous tissue, fell back into their old erroneous ways of acting, and he got a seborrheic eczema.

This case is reported as an illustration of the marvelous tonic effect of this drug, and particularly its action on the nervous system. It also shows how unjustified it is to conclude that because a persistent headache, obstinate to other forms of treatment, is temporarily cured with salvarsan, that therefore the headache must necessarily be of syphilitic origin.

As Ehrlich says, it lies in the nature of things that an antiparasitic drug can never be wholly indifferent to the host.<sup>1</sup> Salvarsan is no exception to this, as it is one of the most powerful tonics and alteratives that has ever been introduced into medicine. That it also may at times act too powerfully, and therefore destructively, on certain organs toward which it has a special affinity, lies also in the nature of things, and for this reason, if for no other, its employment in such cases as the one here reported may be considered unjustifiable.

<sup>1</sup> Die Chemotherapie der Spirillosen von Paul Ehrlich. Zeitsch. F. Immunitätsforschung u. experimentelle Therapie, Bd. iii, Heft xvi, 1911.



### Discussion.

Dr. Geo. E. Ebricht: We have had considerable experience at the City and County Hospital with patients insisting upon having 606 and sometimes they are very loath to leave without getting the remedy. In such cases, in the absence of leucic history, manifestations or specific reaction, there is certainly no justification in using salvarsan.

Dr. H. D'Arcy Power: I would like to ask what the general experience has been in the matter of weight. In a number of cases that I have seen, some in my own, and many in the practice of others, one of the most marked features was the increase in weight; seemingly salvarsan affects the nutrition as well as the nervous system. It seems to me well worth while looking into the questions as to how rapidly and to what extent the salvarsan affects the weight, together with its general effect on metabolism and the distribution of the metabolites.

Dr. Douglass W. Montgomery: Salvarsan has a strong tonic action and it undoubtedly causes a gain in weight, which, I think, must be due to its stimulating effect on the nervous system and the epithelial cells. About 20 years ago Jonathan Hutchinson instituted an investigation in London in regard to the giving of arsenic by the medical profession; I have forgotten what proportion of the prescriptions contained arsenic, but it was enormous, and rightly so, because it is a tonic which rarely disagrees when given in small doses.

### Section on Surgery of the San Francisco County Medical Society, Oct. 17, 1911.

Case presented by HARRINGTON B. GRAHAM, M. D.

This patient, Frank Roth, has for three years had epilepsy. The last attack was September 23, since when there has been headache, increased lachrymation, sensitiveness to sunlight, pain in the eyes and decreasing vision. On September 27th the hearing in the right ear was diminished, there was slight nystagmus on looking to the right, the nose was full of pus and there was a marked hypertrophy of the lower and middle turbinates on the right side. On October 5th I removed the hypertrophies on the lower turbinate and made a puncture of the right antrum which proved negative. At this time there was marked bilated choked discs with retinal hemorrhages. I lost sight of the patient for a week and then found him in bed with an intense headache, choked disc increasing, and a possible diagnosis being made of intra-cranial affection. My diagnosis based on what I had previously seen in the nose was an accessory sinus affection possibly sphenoidal. The following morning the patient expectorated a large quantity of pus and was entirely relieved of headache. In a few days the disc showed improvement. At present, October 17th, the patient is entirely well except for a slight haziness of the discs.

Ocular affections accompanying accessory sinus diseases are not infrequent and Onodi has recently given an interesting list of them, including thrombophlebitis of the ophthalmic plexus, diplopia, bulbar and peri-bulbar neuralgia, retro-bulbar pain, color scotoma, enlargement of the blind spot for colors, shrinking of the field of vision, retro-bulbar neuritis, choked disc, amblyopia, amaurosis, thrombus of the central artery of the retina, optic atrophy, neuroretinitis and bitemporal haemianopsia.

Birsch-Hirschfeld calls attention to the fact that a central scotoma may be a very important early diagnostic symptom of tumors and empyema of the posterior sinuses, especially a unilateral appearance of the same, a rapid development, and the passing of a relative into an absolute scotoma which is combined with a peripheral shrinking of the field of vision. Hoewe claims that before this comes on there is an enlargement of the blind spot for colors.

It is well known that in cases showing neuritis there may be no proportion to the ophthalmoscopic findings. There may be a high degree of blindness

and small ophthalmoscopic findings or vice versa.

The importance of recognizing the sinus affections as the cause of choked disc and other intra-ocular affections is readily appreciated as illustrated in this very interesting case.

### Nephrectomy in a Case of Bilateral Pyonephrosis Recovery.\*

By M. KROTOSZYNER, M. D., San Francisco.

Past history: The patient, a man of 54, was referred to me, about two years ago, by Dr. Wanzer. His family and previous histories are unimportant except that he had lived in a malarial country and had suffered from repeated attacks of intermittent fever during the last 20 years. The first symptoms of his present ailment occurred in the spring of 1906, when he, during the great San Francisco fire, was compelled to camp out for several nights and owing to the exposure and excitement was seized by one of his usual attacks of chills and fever, which, in this instance was complicated by frequent and painful micturition and urinary incontinence. His condition was diagnosed as "inflammation of the bladder" and treated as such for a long time with bladder-washes and internal remedies with the result, that his urinary symptoms gradually increased in intensity, while his general health broke down completely. Of late the attacks of chills and fever occurred almost daily, so that the patient became bed-ridden, prevalent urine dribbled almost constantly from the meatus, he became very emaciated and extremely weak, he was at times semi-conscious and often, especially at nights, delirious.

Present history: The patient looks markedly cachectic and anaemic, his pupils react but sluggishly, he is drowsy and answers incoherently, or not at all, to questions; his skin is dry; his temperature ranges between subnormal and 102° F., his respiration between 20 and 30, his pulse between 100 and 120; it is feeble and at times irregular. By physical examination nothing of pathological note can be revealed except that the lower edge of the liver is palpable about 3 cm. below the costal arch. Kidneys not palpable. Purulent urine dribbles from the meatus into a urinal which lies constantly between the patient's thighs. By catheterization about 400 cc. of urine are withdrawn; upon examination it is found to contain a heavy cloud of albumin, no sugar, no diazo. Indican markedly increased; microscopically: abundant pus, and a few red blood cells; no tub. bac. are found. Noteworthy items of the complete blood examination are: 15,400 Leukocytes, 88% Polymorphonuclears, no Plasmodia; X-Ray plates negative as regards calculi shadows in the urinary tract.

Cystoscopic findings: The first attempts at cystoscopy failed on account of impossibility to obtain a clear medium and because the patient's precarious condition made extended cystoscopic sittings prohibitive. Therefore, the bladder is drained by a retaining catheter, through which the viscus is irrigated twice daily at the bedside, until after innumerable washings a fairly clear bladder fluid is obtained, which though at the next washing is clouding up again. By means of a large-calibered evacuating cystoscope, through the shaft of which the bladder fluid is rapidly exchanged, a brief cystoscopic inspection of the bladder is now feasible (6 days after the patient's entrance into the hospital), which demonstrates a heavily trabeculated and ulcerated bladder-wall, on which the characteristic landmarks of the trigone cannot be differentiated, and a deep and sacculated fundus. An attempt at chromo-cystoscopy fails on account of the rapidity with which the bladder-medium is clouding up. Finally, after many unsuccessful attempts, the left ureter is entered by chance and the right ureteral opening is found in a similar manner by locating

\* Section of Surgery of the San Francisco County Medical Society, October 17, 1911.

it from its left mate. Both ureters are catheterized to the pelvis. Indigo-carmin and phloridzine are injected.

#### Examination of separated renal secretions:

Right Side:	Left Side:
Very small amount of fairly clear urine (a few cc. in several hours), no blue. Faint sugar reaction after 1 hour and 45 minutes.	Much larger amount (15 cc. during the first 15 minutes) of turbid urine. Faint blue after 30 minutes. Fairly strong positive Fehling after 45 minutes.
Micros.—Many pus-cells, hyaline and granular casts, pus casts.	Many pus-cells, many hyaline and granular casts, a few blood-cells, small round epithelial cells.

For obvious reasons a second functional and microscopical examination of the separated renal secretions was deemed indispensable. After several unsuccessful attempts it was again possible to enter the right ureter, while the urine of the left kidney was collected through a catheter introduced into the bladder. The ureter catheter was permitted to remain in situ on the right side for 24 hours, during which time several ounces of pure pus were collected. The urine collected from the bladder-catheter (which represented the left kidney) was considerably less cloudy than that from the right side. Following are the results of the different tests:

Right Side:	Left Side:
No sugar after phloridzin.	0.6% Sugar.
Urea: 0.001.	0.016 Urea.
Micros.—Pus in abundance, many granular casts.	Many pus- and blood cells, less pus than on right side, small round epithel. cells, granular casts.

During his stay in the hospital the patient showed marked symptoms of uremia (vomiting, hiccough, drowsiness, etc.). The temperature remained irregular and was of septic character, the pulse became very feeble and increased gradually in rate. It was evident that the patient was quickly losing ground and would soon be beyond repair.

The second catheterization of the right ureter had furnished the still missing link in the chain of evidence pointing to the absolute anatomical and functional deficiency of the right kidney. Therefore the exposure and, possibly, removal of that organ was proposed to the family as a last resort.

Operation: Under chloroform-narcosis the right kidney is exposed which is found to represent a medium sized sack and which is freed with difficulty from dense adhesions. The kidney, which is opened from its convex edge, shows at its upper pole an area of about 2 cm. of apparently real kidney tissue, while the rest of the organ consists of pus-cavities of various sizes and one larger sack, representing the distended renal pelvis, ending in the thickened and wide-calibered ureter. The very thin stump which is contained in an adhesion, is ligated with medium-sized chromicized catgut and the kidney removed with a portion of about 15 cm. of the ureter.

Subsequent history: The patient's general symptoms did not change materially, immediately after the operation, but his uremic symptoms (drowsiness, vomiting, hiccough, etc.) became gradually less intense. The daily urine quantity which had been about 600 cc. before, increased daily and reached 2000 cc. one week after the operation. At the same time his general condition was perceptibly better, temperature between normal and 100 F., pulse between 65 and 90 and of better volume. Wound healing rapidly. Urine very cloudy and has, at times, the appearance of almost clear pus, especially whenever the retaining catheter cannot be kept in the bladder more than 24 hours. About a

month later the patient begins to partly evacuate his bladder spontaneously so that the retaining catheter can be removed during the day. His general condition is markedly improved, he has increased in weight materially, is bright and cheerful. Urinates about every two hours during the day and twice during the night, but the bladder still contains residual urine, which, upon leaving the hospital, he is advised to remove by catheter twice daily.

At home the patient had, a few weeks later, another of his usual attacks of so-called malarial chills, followed by fever, which when it did not yield to home-remedies (quinin, etc.), was recognized by the writer as being caused by urosepsis due to irregular drainage of the bladder and poor asepsis of the catheter. The patient is persuaded to reenter the hospital, where the left renal pelvis is cautiously but systematically and regularly lavaged with the result that the patient after several weeks of treatment is able to empty his bladder spontaneously, while the urine looks less turbid and contains, microscopically, less pus. Since that time all general and most of the local untoward symptoms have abated. A cystoscopy performed about 8 months after the operation shows the bladder to be divided into 2 compartments which are formed by a fold of the posterior bladder-wall. With the cystoscopic beak directed downwards and kept flush with the sphincter one looks into a well defined bas-fond and when the beak of the instrument is pushed forward and deeper into the bladder a second sacculated bladder-fundus appears behind the fold of the posterior wall. Marked trabecular bladder, trigone widened, the distance between the two ureters being greatly increased. The catheter enters the ureter on the right side without impediment up to 15 cm. from the ureteral orifice, while it passes the left ureter freely up to the renal pelvis; examination of the left renal secretion reveals a somewhat cloudy fluid, containing a trace of albumen, many pus-cells; but no casts.

Comment: This case represents the type of bilateral Pyelonephritis ending in Pyonephrosis, in which an haematogenous or descending infection on one side was later on followed by a secondary ascending infection of the other kidney. The history of the case does not contain absolutely reliable data upon the source and duration of the primary haematogenous right-sided disease. Most probably the repeated so-called malarial chills were in reality caused by right-sided pyelonephritic foci, while the onset of severe bladder-symptoms mark the beginning infection of the renal pelvis and parenchyma on the left side. The very pronounced pathological changes of the bladder-wall, on the other hand, point to the possibility, that the infection of both kidneys was a metastatic one on the basis of a severe cystitis. The questions, whether an operative procedure was indicated, on which side and of what character, could only be logically answered by the functional and microscopical study of both separated renal secretions. It is fair to assume that the success obtained in this case by the surgical procedure was due to the painstaking urological diagnosis. Although at the first successful bilateral ureteral catheterization much clearer urine was obtained from the right than from the left side, it was evident that the whole burden of renal function was furnished by the left kidney, a presumption which was proven beyond doubt by the second partly successful ureteral catheterization. Upon these findings the removal of the functionally valueless right organ could be undertaken, which was considered preferable to nephrotomy. A nephrotomy, in this case, would have left a source of chronic septic infection, which would have increased the chances of additional damage to the second kidney either by ascending or haematogenous infection. My experience has taught me that a pus-kidney which can not be drained thoroughly, is to be considered as a cause of great danger to the second kidney and that it should be removed whenever this procedure is permissible by the condition of the other kidney.



Dr. M. Krotoszyner presented the specimen of a right-sided pyo-hydronephrotic kidney removed from a physician of 35 years. About five days after the operation a typical herpes zoster appeared in the center of the patient's right femur. This represents the writer's third observation of herpes zoster in connection with unilateral kidney lesions.

2. Dr. M. Krotoszyner also presented a specimen of sarcoma of the right testicle removed from a man of about 30. The painless and uniform swelling of the testicle and epididymis in conjunction with a definite history of lues led, at first, to the diagnosis of a specific orchitis. Upon a vigorous antisyphilitic treatment the testicle, at first, seemed to diminish in size. Shortly after the patient left the hospital he returned with his right testicle markedly increased in size. The castrated testicle, upon examination, was found to represent a sarcoma.

## PROCEEDINGS OF THE ALAMEDA COUNTY MEDICAL SOCIETY.

By A. A. STAFFORD, M. D., Alameda.

### Treatment of Whooping-Cough.\*

When your Program Committee asked me to present a paper at this meeting I hesitated at selecting for my subject such a common, every-day theme as whooping-cough; but upon a second thought, the very frequency with which the practitioner meets with the disease or some of its complications or sequelae, seemed to justify me in calling to your attention this malady, which I fear, we all are apt to pass over hurriedly as not being worthy of our earnest attention. Thus we lose sight of the fact that we are dealing with a serious disease with very remote and lasting sequelae.

Our patients thereby come to minimize the dangers that lurk behind the name "Whooping-Cough." Little or no effort is made to check the spread of the disease or to protect the child that is liable to infection. The attitude of the public as regards any disease is a reflection of the importance placed upon it by the medical profession. When one sees the gross carelessness as regards care of children with pertussis, and the absence of effort to apply prophylactic measures there is but one conclusion, and that is, that we doctors have not always done our full duty in sending home to our patients' minds the great and lasting dangers that often accompany and follow an attack of whooping-cough in a child.

With a desire to recall to your attention these dangers both present and remote, and to stimulate within all a resolve to give more careful attention to the little patient with pertussis, this subject is presented for your discussion to-night. I will pass over the subject of etiology, because as yet the exciting micro-organism has not been definitely isolated. The question of diagnosis may be dropped with the statement that no one is able to positively identify the disease until the characteristic whoop or inspiratory crow is present. Although the puffy eyes and languid expression in the presence of an epidemic, may make the attending physician fairly certain that he is dealing with more than an ordinary bronchitis; but it always takes the whoop to clinch the diagnosis.

As to prognosis, one should be very guarded, especially when the patient is in the first year of life, or when the child is already a sufferer from rickets, inherited syphilis, tuberculosis, or some other form of malnutrition. Such as these withstand the long strain and exhaustion of whooping-cough very badly.

Bearing in mind these facts of general medical knowledge, please bear with me while we recall a few important known facts appertaining to the disease; yet facts that seem not to be so generally recognized by doctor and laity as they might be. As to mortality due directly to the disease—in the U. S. more than 12,000 children die annually of whooping-

cough, and this does not include those who succumb to some of the remote sequelae of the disease. This is upon the statement of no less an authority than Forcheimer. All authorities upon diseases of children place the mortality in infants under one year at 25%, and I have heard Dr. D. W. Chapin of New York state repeatedly that under six months of age the average city-raised child did not have an even chance of getting well of whooping-cough. Statistics show that the younger the child the greater the tendency to contract the disease, and the more severe is the disease after it is contracted, both as to direct mortality and sequelae. That is—the older the child the less liable it is to contract the disease, also the less liable it is to die of the disease when it has become infected with it.

Now, if these facts are true, then prophylaxis is of supreme importance when dealing with this disease. And right here is one of the weak points in our present indifferent manner in dealing with pertussis. What is the medical profession doing to prevent the spread of a highly infectious and contagious disease that kills 50% of its victims under 6 months old, and 25% of those under a year? We occasionally report the case to a local health board. What does the health board do? The health board makes school children that are infected discontinue school—and that is all. School children are over 6 years old, and have reached a time of life when the mortality rate is only 1% as against 50% in the young infant. I maintain that we are doing next to nothing to protect the young infant who is in such great danger of infection and death from broncho-pneumonia resulting from pertussis. It is in behalf of the new-born infant that we should be very active in our prophylactic measures. We should instruct the parents of these, when the disease prevails, as to the dangers to the young baby.

Our duty is to make the mother know and distinctly understand that when this disease is in the community, that her young infant is in great danger; but that each month she can keep her child away from the disease, its chances of surviving an attack are improving; so that if the child can be carried into the second year it has a much better chance than in the first; and so on with each added year there is improved chance to withstand the infection. I say, let us teach this well to the public by means of private talk and public campaign, and we will not so frequently be called upon to sign a death certificate as a broncho-pneumonia or meningitis or infantile convulsions or tuberculosis with a primary whooping-cough.

Isolation of the child with the disease is very well theoretically as a prophylactic measure, but isolation of the well infant when the disease prevails is of more importance, and this is one point I desire to make. The profession should teach and practice isolation of the young infant when whooping-cough is epidemic. Teach the parents that it is not an ordinary child's disease with no especial danger, as it seems now to be so generally looked upon; but one that carries with it more danger to-day to the young baby than either scarlet fever or diphtheria. Right along this line is an opportunity to reduce our infant mortality which is only second to our opportunity in the line of protecting the babies from bad food. Just as the baby is entitled to our best efforts to keep its food free of infectious bacteria, so also is it deserving of air that is free from infection; but I fear we often forget this. So much for preventive measures.

Now as to treatment of the disease when present—it is not my purpose to recite the long list of drugs that may be used in treatment. None are specific in their action. You each have your favorite remedy. Mine is equinin and urotropin. I am firmly convinced these have a destructive action on the germ causing the catarrhal conditions. I give full doses of equinin and moderate doses of urotropin all during the catarrhal stage, and avoid as far as possible all depressing anti-spasmodics for cough, being especially afraid of these highly efficacious cough rem-

\* Read before the Alameda County Medical Association, Oct. 17, 1911.

edies like bromoform, antipyrin, anti-tussin, etc. Occasionally I resort to belladonna, but not as a rule.

My practice is to tell the mother at once that she must not pin her whole faith to drugs, but that hygienic measures are of supreme importance. This means the child should be just as well nourished as possible all throughout the disease; that it should have pure, out-door air that is free from dust for 24 hours a day; that it should be in the sunshine as much as possible; and that it should avoid other children and violent exercises and causes of nerve irritation which incite paroxysms of coughing; and then, how to carry out in detail these measures, is carefully explained to her. The child is put through a careful lung examination at least every 5 days. If evidence of a deep bronchitis or bronchiolitis is discovered, it is put to bed and kept at rest in pure open air until danger of broncho-pneumonia has passed by. Proper treatment for capillary bronchitis means early treatment of the condition.

This means that we must see these patients often and watch carefully the general condition of the child as well as to know at all times the conditions in the respiratory tract. It is not sufficient care of the whooping-cough infant to give the mother a few general directions as to hygiene, and tell her that doctors and medicines can do no good, the disease must run its course; and let her go. In many cases, such a course will mean that later the doctor will be called in to treat a terminal pneumonia which might have been avoided had he been in close touch with the patient all along, and had known how the patient was standing the disease.

It is not my desire to recite in detail how to treat the paroxysm of cough, or how to care for the stomach of the child that loses all its food by vomiting. You all know these details. But let me urge the importance of great ventilation of the patient's sleeping-room, of the daily sunning and airing of the bedding, of the maintaining the patient's general condition all along at the highest possible point, by good food, fresh air and sunshine.

And finally, I urge more watchful care of these small patients with whooping-cough, and far greater activity in preventing them from being exposed to this severe infectious disease.

### Intestinal Intoxication in Infants.\*

By FLORENCE M. SYLVESTER, M. D., Oakland.

As one looks over the recent literature on intestinal intoxication in infants, one thing stands out prominently: the lack of harmony in the different theories advanced to find its cause. There is a great variety of causes suggested, and the inaccuracy of terms leads to many misunderstandings. From some few carefully observed phenomena general conclusions are arrived at, and on these are based entire systems of treatment. No sooner have we accepted an apparently well founded theory, but some one else will single out another symptom, and group about that a whole school of investigators, whose writings will upset all our notions about feeding for a time, until we settle down again with some new method. There surely is need for some practical clarification in the great mass of apparently contradictory data that are accumulating about the digestive disturbances of infants.

The most common intoxications are probably due to wrong feeding. For these satisfactory treatments have been evolved. As Czerny puts it: The problem of artificial feeding is solved for disturbances of alimentation, but not for those from infection or constitutional anomalies of absorption.

Secondly, we have intoxications due to bacterial action. From these we may eliminate for to-day's discussion the enteral infections, such as dysentery, cholera, typhoid, etc., whose main attack is local, and which have a definite symptom complex; also

the parenteral infections, such as grippe, pneumonia, etc., in which the intestinal disorder is entirely secondary.

That leaves for our consideration those bacterial intoxications, from absorption of products of decomposition, which are due to excessive putrefaction in the large intestine, the actual alimentary toxicoses. Herter<sup>1</sup> divides these into three distinct clinical types:

1. The indolic type, which shows us the marantic form of chronic indigestion in children with large abdomen, sweating of the head, and retarded physical growth. These children always show indican in the urine, due to the action of bacillus coli and bacillus putrificus. It is common in partial occlusion of the common bile duct or of the small intestine, and in functional pancreatic achylia. In the stools bacillus bifidus always dominates over the bacillus coli. This type has very great similarity with that of infantilism, which he describes more in detail in a later work, but no direct transition between the two has been observed.

2. The second, the saccharo butyric type, is much more common in adults, and leads to chronic invalidism. The bacillus aerogenes capsulatus is the most prominent organism; the stools are of light color, and have a definite odor of butyric acid. There is slow anemia, due to the hemolytic action of extract of the feces, and there is definite damage to the mucosa.

3. The third type is a combination of the two, in which anaerobes predominate, and there is persistent high indicanuria. These are the cases that show irritability, or mental depression, marked mental and muscular fatigue, and haemic disturbances. Peripheral neuritis, melancholia and other psychoses may be caused by enterogenic poisons. Probably there are also parenchymatous changes in liver and kidneys.

4. The most interesting of the conditions described by him is that of infantilism,<sup>2</sup> which is characterized by a retardation in the growth of the body, including the skeleton, with a relatively fair development of the brain.

These two points mentioned are the most important of the clinical features; associated with them we often find marked abdominal distention due to a partial paralysis of the gut, and without much flatus; a moderate anemia; a rapid onset of fatigue both mental and muscular, due to chronic intoxication, which allows the muscles to become weak and flabby, and usually some disturbance of intestinal function like diarrhea or fatty stools. There is often a sweating of the head, excessive appetite and thirst, associated with increase in urine, subnormal temperature, tendency to urticaria, marked nervous instability, sometimes even pettimal, and occasionally rickets.

The characteristic feature in every case is the fact that the bacterial flora of the colon is the same as that of the nursing. Escherich calls it "Blaue Bacilliose," as the Grampositive, blue rods predominate in the smear. They are mainly: bacillus bifidus, described by Tissier, productive of lactic acid; bacillus infantilis, which checks the growth and gas production of bacillus coli, and forms volatile bases, especially ammonia, and coccal forms. Bacillus coli and lactic aerogenes are very infrequent, but begin to appear with recovery.

The urine shows marked indicanuria, an excess of phenol in the distillate, aromatic oxyacids, the Diazo reaction, and indolacetic acid.

The intestinal contents show an abundance of fatty acid crystals. There are many phenolic substances, indol, hydrogen sulphid, indolacetic acid, and aromatic oxyacids, but skatol is never present. There is no calcium retention, and sometimes even a calcium loss; in one case the absorption was one-tenth as much as in a normal child. The fat loss is very evident in the marked increase in fatty acids and soaps. While the normal absorption of fat is from 92-98%, these cases fall as low as 85 or even

\* Read before the Alameda County Medical Society, Oct. 17, 1911.



70%. Three-quarters of this is lost in the form of soaps, hence the fat loss is not due to lack of fat splitting, but to lack of absorption.

The pathological explanation of all these phenomena, and especially of the retarded development, is an insufficient absorption of foodstuffs from the intestinal tract. The carbohydrates, which are so important for the caloric needs and the deposit of adipose tissue, are not tolerated; the fats cause less disturbance, but they are not sufficiently utilized, for the loss may be 40% of the intake. Much of the calcium, important as "Bausteine" for tissue building, is lost as alkaline soaps. Besides this loss of foodstuffs, there is a constant state of intoxication due to the excessively rapid decomposition of dextrose by bacteria. This impaired power of absorption, in Herter's words, "is due to a chronic inflammatory process in the lower part of the small intestine and the contiguous part of the colon, due to a dominance of an unsuitable bacterial flora. The indol has a depressing or irritative action on the central nervous system, and this as well as all the other symptoms show a striking amelioration coincident with the fall of the aromatic putrefactive substances in the urine. The putrefaction not only entails the loss of food materials, but its products, after absorption, may have a damaging action on the cells concerned in assimilation.

If neglected, this condition would have as consequence deterioration and perhaps death, or at least a fixed state of underdevelopment. Under treatment there is marked improvement. In one case grand mal was the sequel to errors in diet in this condition, in an attempt to push the slow progress. The child had had, two years before, some seizures of petit mal, or at least losses of consciousness without motor symptoms. The appearance of epilepsy in this case was associated with an increase in intestinal putrefaction—that is, it followed intestinal intoxication in a child, whose nervous system had been rendered unstable by a long intoxication of milder intensity than that needed to induce grand mal.

Herter's claim that infantilism as well as some other forms of intestinal intoxication are due to "the dominance of an unsuitable bacterial flora" is based on his careful analysis of normal feces, at different ages, as compared with feces during nutritional disturbances. By means of cultures, but especially through the Gram stained field, he finds definite forms characteristic of certain conditions:

The meconium, which is a poor culture medium, has only spore-forming bacteria, and no *bacillus lactis aerogenes*, nor *acidophilus*.

The bottle-fed infant has more bacteria than the nursing, even if fed on sterilized milk; the feces show Gram negative bacteria of the *bacillus coli* type.

The nursing, on the contrary, shows mainly Gram positive bacteria of the *bacillus bifidus* type. Their stools have very little indol and skatol and no reaction with diamidoazobenzol.

In childhood *bacillus putrificus* and *lactis aerogenes* are only present in small number, but increased above the previous age, for the presence of *bacillus coli* and the neutral reaction favor the growth of the putrefactive anaerobes.

In the adult these two show a greater increase, and indican and ethereal sulphates appear in the urine.

In senescence *bacillus coli* is much decreased and *bacillus putrificus* flourishes—a condition which often may be causative of early senescence.

From the findings of such definite Gram positive rods in the nursing (which, however, in culture are easily overgrown by Gram negative colon bacteria), and, contrary to normal conditions, the persistence of this same Gram positive field in cases of infantilism (which, as recovery progresses, give way gradually to Gram negative fields, normal to the age of childhood, as well as to the bottle-fed babe, and

which reappears with recurrences), it is but one step to the assumption that this disease and the bacterial contents have some relation to each other. Herter assumes the persistence of the nursing's flora to be causative of infantilism.

But now, lest we think that all our pediatric troubles come from those ubiquitous bacteria, let us look at some of the theories attempting to explain the intolerance to certain foodstuffs in children by a perverted metabolism.

We are inclined to assume all nutritional disturbances due to a quantitative lack of response to definite factors in diet. To Finkelstein and his school, Meyer, Czerny and others, is due the emphasis now laid on the qualitative lack of response in a child with a constitutional metabolic disorder or "Ernährungsstörung."

In the beginning of our methods of percentage feeding most of our troubles were laid to the door of proteid intolerance. We based this on the appearance of so-called "curds" in the stools. Later these curds were eliminated by the wholesale and were all turned into lumps of fatty acids, soaps and bacteria by Meyer in Berlin, Leopold in New York and others of the Finkelstein school,<sup>3</sup> with the assertion that casein was never found in them, and that even the hunger stools of infants not fed on proteid diet will give a protein reaction. It was Talbot of Boston<sup>4</sup> who showed up the fact, which is so common in all these controversies, that there was a misunderstanding of terms. The "curds" of fat origin were small, soft, friable yellowish or whitish green,—and Talbot gives an excellent and simple method of determining in the stools the amount of fat excess as indicator for the variation of fat in the feeding. But the large, hard, tough curds, from the size of a pinhead to that of a lima bean are definitely distinct from the others.<sup>5</sup> They do not disintegrate, they sink to the bottom in water, resemble horn or gelatine when dried, and finally crumble to powder. They are white, greenish or amber and are rare, never occurring in breast-fed infants. They disappear even in high protein mixtures if the milk is boiled, and occur only with raw casein, and more easily in fat free milk. Since in Germany boiled milk is used almost exclusively, and here the raw milk, the explanation is apparent why the German school claims that all "curds" are due to fat.

Dr. Porter in San Francisco has had an experience which bears out that principle. He found that these tough casein curds appeared at the same time in hospital infants fed on the same milk, which, on bacterial examination, showed at that time an unusually high count. They disappeared when the milk was boiled, or exchanged for clean milk. Hence the curds are caused by the feeding of bacterially contaminated milk. He suggests the explanation that by development of acidity a change in electrolytes is produced, which interferes with even the moderate protective action that lactalbumin usually exerts.

Although the Finkelstein school still claims that proteid is never causative of digestive disturbance, that casein is without danger in the most serious cases and even causes an alkaline fermentation, opposing the acid fermentation, yet the majority of authorities, at least in the United States, seem to think that protein in excess may cause nutritional disorders, though it is the least harmful of milk constituents.

The excess of fat in the stools can be approximately judged of by the Sudan 3 and carbol Fuchsin method as described by Talbot. It may show itself by the appearance of the "soft curd," mentioned above, flat, white flakes, often with mucus, green or yellow. Or more often there are typical soap stools, very light yellow or white, salve-like, or else dry and brittle, with a shiny surface. These are frequent in constipation from too much fat, and are often the precursor of diarrhea and infantile atrophy. The other type of fat stools, bright yellow, oily, soft, leaving a grease spot on paper, are easily recognized,

Czerny and Keller, also Heubner, emphasize the danger of excess of fat, maintaining that it is much less easily disposed of than proteid or carbohydrate excess.<sup>6</sup> It remains in the intestine to be saponified, thereby extracting from the body alkaline bases, which are not compensated for by the milk diet. Our percentage methods have led to a great over-feeding with fat, and the skim milk feeding, that has recently become more and more popular, has eliminated a large number of disturbances due to this error. Sterilized, undiluted skim milk is digestible by premature infants, and in some especially difficult cases fat-free buttermilk has given excellent results. But both are too poor in nutritional elements for permanent food, and the skim milk in practice often leads to intractable constipation, theories to the contrary notwithstanding.

A factor that has been neglected because of its supposed harmlessness is the salt content of the infant's food, although it has been known for a long time that sodium chloride can have a toxic action. Ludwig and Meyer's investigations<sup>7</sup> have thrown more light on this, and especially on its pyrogenic effects. At low concentration of sodium chloride solution only children with acute digestive disturbances react with increase of temperature; with a three per cent. solution all children react. This is due to the sodium itself, for the anion chlorine did not have the same effect, as little as did the other cations, calcium and potassium. The only other sodium salts increasing the temperature are sodium bromide and sodium iodide. The explanation of this phenomenon, that the halogen combinations with sodium are the most pyrogenic, is, according to Meyer, as follows: By their rapid absorption they pass rapidly through the mucosa into the blood, and inundate it with a hypertonic solution.

One reason why the effect of salts has been so long neglected is that an increased amount shows no definite symptoms unless the cells are directly damaged through too large doses, or other substances necessary for the cells are withdrawn through the salts. Then the symptoms are similar to those of alimentary disturbances from fat and carbohydrate: fever and changes in weight, but they are due mainly to the effect of salt on the water metabolism. A rapid binding of salt (or water) in the infant's organism leads to fever—a rapid giving off to subnormal temperature.

Just as a salt fever may follow an increased input of sodium chloride, so sugar may also cause a rise of temperature irrespective of digestive disturbances, from the physical effect of a hypertonic solution.<sup>9</sup> The elevation of temperature in sugar fever occurs later than in salt fever, but the curve is about the same. This occurs more often in mixtures rich in whey, and varies according to the kind of sugar. Milk sugar and cane sugar are most likely to produce fever and diarrhea, dextrine-maltose mixtures are less likely to, and saccharose is the least noxious of them all. In regard to the sugar content of the blood,<sup>10</sup> it is interesting to note, as Cobliner points out, that it is normally greater in nurslings than in adults. In dyspepsias and intoxications the blood sugar content is not increased, and in decomposition and putrefactive disturbances in the intestine there is a hypoglycemia, which gradually reaches the normal as the patient's condition improves. In salt fever there may be a hyperglycemia.

These terms dyspepsia, decomposition and intoxication are very frequent in the vocabulary of the Finkelstein school. Finkelstein assumes<sup>11</sup> that certain types of metabolic disturbances, "Ernährungsstörungen," are based on a deterioration of the general physical condition and especially of the cells concerned in nutrition, so that the tolerance for food is diminished. In such conditions there is a morbid instead of the normal physiological reaction to food, a paradoxical reaction, which deviates from the normal in proportion as the food injury advances.

In this disorder he describes four definite types—hardly "stages," as some translators call them, for though sometimes they merge into each other, any

one of them may exist as a distinct condition in different cases.<sup>11</sup>

The first and mildest of these is merely a disturbance of balance, "Bilanzstörung." The child does not gain on food that would cause normal growth in a healthy child; there is a paradoxical reaction to food. There is no definite loss of weight, no catastrophe—that comes later—but merely a lowering of tolerance to quantitative or qualitative increase in food, an inferior result of processes of nutrition due to this disturbed balance. In this condition there may be soap stools and a greater temperature variation, with the average slightly below or above normal, but above all a standstill in weight, a paradoxical reaction to food intake.

The cause of this is ascribed entirely to the fat. The proteid is innocent, the carbohydrate is still tolerated, though later that tolerance may decrease. Mother's milk always ameliorates the condition.

Dyspepsia shows more signs of local disturbance, akin to the condition usually called gastroenteritis. There is much fermentation and lowered resistance to bacterial action. An increase in fat causes not only a standstill, but a loss in weight, and carbohydrate intolerance is increased, hence a fat free, sugar poor buttermilk is successful in these cases. There may be more or less fever, according to the degree of sugar intolerance.

Alimentary decomposition shows signs of general disturbance. There is loss of weight on both fat and sugar in the food. The emaciation advances the more rapidly, the more food is supplied, as Finkelstein expresses it. There is a reversal of the processes of nutrition due to some mysterious change in the character of metabolism, a marked paradoxical reaction to food. These are the usual cases of atrophy and marasmus. Since there is such a marked narrowing of the field of tolerance, the food has to be cut down, which may improve the tolerance. But the low amount of food does not furnish the necessary energy quotient, and so there is loss of weight, whether the food be increased or decreased. Mother's milk may help in some cases, though later even that is not tolerated.

Alimentary intoxication is marked especially by fever, and may occur before any of the preceding conditions have been noticed, though it must have been preceded by some injury to the digestive tract, as in dyspepsia. In the fully developed cases there are always some of nine cardinal symptoms, and often all of them: Disturbances of consciousness, such as excitement, irritability, or sometimes stupor and even coma; changes in respiration, which is hastened and interrupted, often exaggerated and deepened; alimentary glycosuria; fever; collapse; diarrhea; albuminuria and cylindruria; loss of weight; and leucocytosis, usually not exceeding 30,000. This type in its varying degrees would cover the conditions of enterocolitis, acute enterocatarrh, and cholera infantum.

The condition is the paradoxical reaction of a child with metabolic disorder to a constituent of the food which may possess capacity of toxic action and which is present in amounts exceeding the child's decreased tolerance. Even mother's milk here is no more tolerated.

The cause of the fever in these cases is always the sugar. This may produce, according to the degree of decomposition, either fermentation, or loss of weight, or fever, or fever and intoxication; and so the administration of varying amounts of sugar may be a diagnostic measure to determine the degree of decomposition. As soon as the sugar is eliminated from the diet, the phenomena of intoxication disappear. The role of fat is only indirect, by its injurious action on the sugar eliminating function. Less sugar can be worked up when fat is present than in fat-free food. So fat leads indirectly to intoxication, by making susceptibility to sugar intoxication greater.

The panacea for all these ills is found by Finkelstein in a temporary use of his albumen milk, which is made by separating the whey (which contains the



milk sugar and salts in solution) from the curd (which represent the casein and fat). This is done by repeated filtration under pressure through a linen cloth. Some water is added until the whole forms a milk-like, fine emulsion, then some buttermilk. The latter contains but little milk sugar, and the lactic acid has a good effect. The food is fabricated under uniform conditions by a German firm, and can be bought, thus avoiding the inaccuracies of individual production.

The averages are about 3% protein, 2.5% fat, 1.5% sugar, and 0.5% ash, as compared with the 3.5% fat, 4.5% sugar of cow's milk. The method of administration of albumen milk and the gradual transition to other foods are given in detail in Finkelstein's monograph, and the failure of some imitators of this feeding method may be due partly to nonobservance of some of these details, or to inaccurate diagnostic classification of the cases, so that Finkelstein's indications for definite doses were not observed.

From all these various and conflicting causes assigned to alimentary toxicoses, we can see that the treatment so far has to remain somewhat empirical and individualized.

For intoxications from bacterial infection Herter recommends above all high and repeated colon irrigations, avoidance of bacterial contamination of the food, as in uncooked foods and cheese, a non-irritating diet, rest and hygiene, use of a diastatic ferment, and avoidance of intestinal antiseptics and cathartics, but use of the various lactic acid containing milks.

Professor Koeppe, in Giessen, Germany,<sup>12</sup> has made some exhaustive study as to the use of buttermilk, and recommends highly a buttermilk soup, which is made in the following way, and which can also be had, systematically prepared by a German firm: Buttermilk won from sour cream, of a definite degree of acidity, is stirred with cane sugar and wheat flour over a fire until it comes to a boil three times. This buttermilk soup is called Hollaendische Sauglingsnahrung, or H. S. for short. Atrophic infants, who could thrive only on mother's milk, have gained on it, and one day old children can digest it. The cane sugar per cent. is high, but, contrary to all clinical experience, and especially contrary to the theories we have just seen, is well borne in H. S., which Koeppe explains by inversion of the cane sugar in boiling through the hydrogen ions of the acid milk and their further inverting action in the stomach so that no fermentation can occur. The high per cent. of albumen is well borne, because the curd is mechanically broken up into fine particles. There is also a chemical difference between the curd formation in sweet milk and buttermilk, since in the former the gastric hydrochloric acid has to remove the calcium, and the insoluble pure casein is the residue, which has to be acted upon by the pepsin, while in buttermilk this precipitation of casein acid is accomplished by lactic acid, and the HCl. of the stomach, not being needed to bind the calcium, can aid the pepsin to digest and disinfect.

I tried this preparation with good result in a babe which had persisted in constipation and frequent vomiting on skim milk, and which at two months weighed seven and a half pounds, as at birth. We used first the German market product, and later imitated the combination in the home, with good success, starting the babe on fair gain, until mother's milk could be secured for it.

As to the treatment of infantilism, Herter reports excellent results in the cases in which the management was based on his theory of causation. He emphasizes the need of general hygiene, both physical and mental; in the diet he avoids all opportunity for putrefaction. For carbohydrates he allows, definitely weighed, small amounts of rice, arrowroot, Huntley & Palmer biscuit, and dextrinized preparations—all this preferably given with a diastatic ferment. For proteid he relies mainly on milk, also egg albumen, and in older children occasionally minced beef or chicken. The yolk is badly tolerated. Above all, he recom-

mends the addition of gelatin to the diet, as it is exempt from ordinary fermentative decomposition, not having any tryptophan or tyrosin nucleus. It furnishes 4.3 calories per gram, and it is quite possible to give a child weighing 28 or 30 pounds one ounce in the twenty-four hours.

As to medication, he advises the giving of calcium and magnesium only in the soluble lactate form, and the phosphoric acid separate from the alkalies, to prevent precipitation of insoluble phosphates. Iron is not well tolerated.

From all this medley of facts and theories there is not much of which we can actually make practical use, but there are two points in Finkelstein's theory which cannot but appeal to the reader, and which other explanations of nutritional disorders have tended to omit: First, that we cannot expect from an infant with metabolic disturbances the same qualitative response to food as from a healthy child. The theory of a paradoxical reaction points at least to the probability that in such a child the processes of metabolism might be entirely different from those in a normal one.

Secondly, we cannot isolate the food elements and claim that any one alone is the disturbing factor. In the complex chemistry of the body the different food elements interact upon each other. We see this in the relation of fat and sugar metabolism, of salts and water, of fat and alkali earths, and perhaps of many other constituents that have not yet been fully understood.

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#### COOPER COLLEGE SCIENCE CLUB.

The Cooper College Science Club held a regular meeting on Monday, Nov. 6th, 1911, in the medical Clinic of Cooper Medical College. The following scientific program was given:

1. Presentation of a Case of Contraction of Bandl's Ring Indicating Caesarian Section. Edmund Butler. Discussed by R. K. Smith.
2. Demonstration of Cases and Specimens. Harrington B. Graham. Discussed by Drs. Oliver, Graham, Eaves, Rixford, Addis.
3. Remarks on So-Called "Automobile Fractures," with X-Ray Pictures. W. H. Winterberg. Discussed by Drs. Rixford, Stillman, Rumwell, Winterberg.
4. Report of a Case of Malignant Oedema. James Eaves. Discussed by Drs. Stillman, Rixford, Ophuls, Oliver, Eloesser, Eaves.

Refreshments were served at the close of the program.

### CALIFORNIA ACADEMY OF MEDICINE.

The regular monthly meeting of the California Academy of Medicine was held on Monday evening, Oct. 23, 1911, at 8:30 p. m. in the library of the San Francisco County Medical Society.

The scientific program was as follows:

1. On the Treatment of Hereditary Hemophilia. Dr. Thomas Addis. Discussed by Drs. Mace, Eaves, Kerr, Hunkin, Bine, Tait, Eloesser, Addis.

2. Demonstration of Neuro-Pathological Material. Dr. G. Y. Rusk.

Drs. A. L. Fisher, H. C. McClenehan, Thomas Addis, James Eaves, E. W. Twitchell and J. G. Fitzgerald were duly elected to membership.

Refreshments were served at the close of the program.

### SOME OBSERVATIONS ON GOITRE.

By H. S. DELAMERE, M. D., Berkeley.

In my practice, which is strictly private, not being connected in any way with a public institution of any kind, I would think goitre to be decidedly on the increase in California. For some years I have been trying to think of a reason, and now believe I have solved the problem.

Goitre appears to be extremely prevalent among fox terrier dogs. In fact, it is remarkable the number of these little animals which have the disease. These diseased dogs are almost invariably family pets. They are fondled by women, their saliva coming in contact with women's faces. They feed out of family dishes. There is every opportunity for especially the female members of the family becoming infected from the dog.

The dogs' fecal discharges are deposited promiscuously about the premises, becoming reduced to powder and finally to dust. Both male and female are then subjected to danger of infection by inhalation and contamination of food and drinking water.

The remedy: Promptly cremate all goiterous animals.

I have just seen mentioned in the New York Medical Journal that Dr. Robert McCarrison of the Indian Medical Service (Proceedings of the Royal Society for August 18, 1911) has experimented with goats and has transmitted the disease to them. It would certainly be interesting if some one with proper facilities at his disposal would investigate in a scientific way the connection, if any, between goitre in dogs and people in the state of California.

### BISMUTH-IODIN PASTE IN DISCHARGING SINUSES.

By L. D. GREEN, M. D., San Francisco.

In a case of discharging sinus following an operation for carcinoma of the breast, the surgical measures usually employed in such cases failed to close the sinus. After trying the various methods for two months, Beck's Bismuth Paste was used for three months also without success. I then incorporated in the paste Tincture of Iodin with the result that with three injections the sinns closed in ten days. I have since then used it in a number of other cases of discharging sinus with equally good results.

I have been unable to find in the literature this method of using Beck's Paste and Iodin and therefore report it to the profession for further investigation.

The formula used is as follows:

Bismuth Subnitrate .....	30.
Vaseline .....	60.
White Wax .....	5.
Paraffin .....	5.
Tincture of Iodin .....	2.

The Iodin should be added after the other ingredients have been thoroughly mixed and the paste well stirred whenever used.

As there is a possibility of absorbing too much Iodin where the amount of paste used is large, the proportion of Iodin may be reduced accordingly in such cases.

### ARMY MEDICAL CORPS EXAMINATIONS.

The Surgeon-General of the Army announces that preliminary examinations for the appointment of first lieutenants in the Army Medical Corps will be held on January 15, 1912, at points to be hereafter designated.

Full information concerning these examinations can be procured upon application to the "Surgeon-General, U. S. Army, Washington, D. C." The essential requirements to securing an invitation are that the applicant shall be a citizen of the United States, shall be between 22 and 30 years of age, a graduate of a medical school legally authorized to confer the degree of doctor of medicine, shall be of good moral character and habits, and shall have had at least one year's hospital training as an interne, after graduation. The examinations will be held concurrently throughout the country at points where boards can be convened. Due consideration will be given to localities from which applications are received, in order to lessen the traveling expenses of applicants as much as possible.

The examination in subjects of general education (mathematics, geography, history, general literature, and Latin) may be omitted in the case of applicants holding diplomas from reputable literary or scientific colleges, normal schools or high schools, or graduates of medical schools which require an entrance examination satisfactory to the faculty of the Army Medical School.

In order to perfect all necessary arrangements for the examination, applications must be complete and in possession of the Adjutant-General at least three weeks before the date of examination. Early attention is therefore enjoined upon all intending applicants. There are at present sixty-four vacancies in the Medical Corps of the Army.

### BOOK REVIEWS

**A Text-Book of Medical Diagnosis.** By Jas. M. Anders, M. D., Ph. D., LL. D. and L. N. Boston, A. M., M. D. Published by W. B. Saunders Co., Philadelphia and London. 1911.

The writer after a careful study of the treatise on Medical Diagnosis, by J. M. Anders, M. D. and L. N. Boston, M. D., must acknowledge therein a specific value to the medical profession in the subject named. The logical sequence of the authors' development of their subject and the fund of general information imparted stand out pre-eminently as the cogent reasons for the acceptance of this work. The critic is free to admit that he is impressed particularly by the scientific classifications that are everywhere extant throughout this Medical Diagnosis text. A further and equally commendable feature is the exemplification of the major symptoms. This is accomplished with great force and perspicacity and attests fully to the authors' grasp of this important phase of the subject treated.

In submitting a criticism of the work in question it is the writer's intention to touch solely upon the one essential in correct diagnosis that has been lost sight of, or strictly speaking, has been too lightly touched upon. A close student of Diagnostics must be appalled at the authors' apparent inattention to minor symptoms. To illustrate this—in Aortic Regurgitation the authors bring out the more prominent symptoms, but fail woefully to mention that a diagnosis of Aortic Regurgitation must be made at times when one or more of the typical signs are not present. To elaborate further—has not experience proven that one is called upon to diagnose this condition without a Diastolic Murmur? and, on the other hand, the patient showing symptoms of Angina Pectoris would always make one suspect an Aortic Re-



gurgitation. The Murmur is an important sign and eminent authorities concede it an important factor in a scientific and accurate diagnosis of this condition. A description of the concurrent and varying nature of the Aortic Murmur will not be amiss, here. The Murmur is ever heard better in a reclining than in an upright position—to be exact, it can at times only be heard in a reclining position. It has its beginning with a loud murmur, gradually declining, and is wont to extend throughout Diastole; and here the Aortic Sound is frequently missing or very faintly transmitted at the Pulmonic Area. It is in this region and not at the Aortic Area that the Murmur is heard loudest. Let it be noted, that, to the contrary, and not infrequently the second sound may be greatly accentuated when the flaps of the valve are not allowed to oscillate owing to an Arterio-sclerotic condition.

It does not seem necessary to make a further summary of the author's inattention to minor symptoms. There are doubtlessly many dicta and some discrepancies that can be criticized, but it is the writer's intention to show solely, in his judgment, wherein the work is strikingly deficient.

The treatise is extremely valuable and the critic can not too earnestly commend a careful reading to the profession. It is ever well to have a guide in the study of our best authors and it is my opinion that Anders and Boston can best be read for their treatment of Major Symptoms, but the student must bear in mind that Minor Symptoms are at times pre-eminent and must always be reckoned invaluable where a true and exact diagnosis is sought.

H. KRONENBERG.

**General Medicine.** Vol. I of Prac. Med. Series, 1911. Edited by Billings & Salisbury. Pub. by Year Book Pub. Co. 1911.

This volume covers infectious diseases; diseases of the lungs, pleura, heart, blood vessels, blood, blood making organs; ductless glands and kidneys and metabolic diseases.

The mode of presentation of each of the above consists in a carefully edited abstract of the best articles contributed to the literature of each subject classified under the heads of Etiology, Pathology, Symptomatology, Course, Diagnosis, Prognosis, Treatment and usually preceded by some article that presents a comprehensive review of the subject under consideration. The manner in which this has been done shows a very careful sifting of the multitude of articles that appear in the ever increasing mass of the literature of medicine and the allied sciences. The field of usefulness of such a compilation lies far above that of a mere index to the literature and is, from its annual nature, much more flexible than any system of medicine, however recent. It provides the busy practitioner with a ready reference book wherein casual reading is rewarded by an acquaintanceship with practically all of the newest thoughts in this field. In addition the seeker after information on any of the subjects treated may be quite sure to find not only a clear, concise and carefully digested reply to his question, but also a full bibliography in which to amplify his research. To the man who does read the various journals, the volume also presents the advantage of correlating the work of the various schools as the method of presentation is very impartial and apparently free from partizanship.

In conclusion, it may be said that hardly anyone can casually scan this volume without seeing something that has escaped him in the literature, something relevant to a case under consideration, something that may prove of value at a later opportunity, something of useful interest in connection with his work. The work replaces neither index, current journals nor text-book, but combines all three and makes them decidedly more available.

G. H. T.

**General Medicine.** Edited by Frank Billings, M. S., M. D., and J. H. Salisbury, A. M., M. D. Vol. VI of Practical Medicine Series 1911. Published by Year Book Co., Chicago. 1911.

This volume is a continuation of Volume I and covers the infectious diseases, diseases of the mouth, esophagus, stomach, intestines, liver and pancreas. While possessing the same general characteristics as Volume I (vide supra), there are several items of especial interest such as Brill's disease, of the typhoid group, the tryptophan test in gastric cancer, the bead test in intestinal diseases, and others of the newer diagnostic methods concerning which it is well to be cognizant, whether their value is established or as yet problematical. G. H. T.

**Diseases of the Stomach.** By Chas. D. Aaron, M. D. Lea and Febiger, Philadelphia. 1911.

This is an octavo of 555 pages and is certainly a very complete and up to date collection of every therapeutic and diagnostic measure of any importance which has been published in the last fifty years. In evidence that it is up to date we must mention the tryptophan reaction, the hemolytic reaction of cancerous blood serum, antilytic serum, the bacterial vaccines, and salvarsan, which are described.

The first 30 pages are devoted to the latest physiology of digestion embracing the record epoch-making discoveries of Pawlow of St. Petersburg, and very properly we think: A thorough comprehension of this chapter ought to lead any thinking physician to proper treatment. An important omission here is that of plates showing that the normal shape and position of the stomach is the cow's horn, with the pylorus as the lowest point. This was published by Holzknecht of Vienna and Riedel of Jena in 1906. This is very important as showing the existence of gravity drainage normally. There is no scheme of examination given as is customary in foreign books, which we think desirable in a book written for the general practitioner: not enough stress is laid on the local history in making a diagnosis, which is as important as the laboratory examination.

Chapter 4 is devoted to a description, composition and comparative cost of the various patent foods and predigested foods on the market. The author quotes at length the admirable reports of the Council of Pharmacy and Chemistry of the Am. Med. Assn., and the Bulletin No. 114 of the U. S. Dept. of Agriculture, Bureau of Chemistry, showing how little nutritive value have even the best of them.

On page 86 the protein requirements of the body are placed at 100 grammes daily, ignoring the late investigations of Chittenden, which establishes about 30 grammes as the minimum. On page — it is stated that milk is well borne if it does not stay too long in the stomach; this seems to be a bull; anything is well borne if it does not stay too long in the stomach. On page 96 the author says that potatoes are a satisfactory food for all classes of gastric patients; this is against my experience; the reason why is that potatoes are so soft that they can be, and are swallowed without any chewing, and this neglect of chewing is the great cause of all gastric disorders. On page 316 sugar is mentioned as being useful in the diet of Hyperchlorhydria, because it was found in laboratory experiments to diminish the secretion of HCl. In practice we find sugar to be injurious in all kinds of acid dyspepsias. Illoway in 1902, Archiv. der Verdauungskrankheiten, found large quantities of sugar with the food to produce acid dyspepsia. On page — Dr. Aaron mentions chloride of lime in 10 per cent. solution for gastric hemorrhage; this is presumably a mistake, as in this strength it is almost caustic; chloride of calcium was recommended by Boas for rectal hemorrhage. On page 275 Bromide of Potass., Valerian and Choral are given for nervous vomiting; now these last two drugs are badly tolerated by a delicate stomach; given by enema they are most efficient, but the author does not mention this method.

The engravings and plates are entirely new and

good, and also the paper and typography. We think it is a useful book for the specialist but not for the general practitioner for whom he states it was written, because throughout the whole book there prevails a lukewarm tone of praise or condemnation: when the general practitioner consults a specialty book, he wants some decided expression of the author as to what of the signs, remedies and plans of treatments he has found best, otherwise he might as well consult the therapeutic index in the back of any pharmacopeia.

A. W. PERRY.

**Gynecology.** Edited by E. C. Dudley, A. M., M. D., and C. von Bachellet, M. S., M. D. Practical Med. Series. 1911. Published by Year Book Pub. Co., Chicago, 1911.

This little volume is a résumé of the advances of gynecology during the year, giving the results of many men's work in a very concrete form and the busy practitioner is saved the labor of wading through endless papers in the journals. The book is divided into six parts: general principles, infectious and allied disorders, malformations and tumors, traumatism, displacements and disorders of menstruation and sterility.

In part one, J. S. P. Tuttle's article on the relation between rectal diseases and diseases of the female pelvic organs is the most important. He deals minutely with the symptoms of each and shows their similarity due to proximity of nerve centers in the cord.

In part two, the article on tubercular peritonitis is well worth reading, giving many useful ideas. The bacterial vaccines are being used more and their place in therapeutics is well established.

In part three the differential diagnosis of various tumors is very concise and yet admits the practical impossibility of differentiating between the different malignant masses before operation.

Our attention is called to the necessity of removing lymph glands and the upper vaginal mucosa in connection with carcinoma uteri. This has been neglected in the past and must be passed up in the future in those cases that do not stand the shock of operation well.

Radium is recommended in inoperable cases and used previous to operation in those cases which are on the borderline, as a means of preparation for operation. As heretofore, early operation is the only means at our disposal, by which we can hope to effect permanent cures.

Hysterectomy for fibromata is advised more than formerly, as the risk of operation is 5%, while the risk of carrying the tumor is 14%.

In part five retroversion operations are discussed. No method is ideal, but Webster's seem to offer the best results.

G. S. S.

### TRANSMISSION OF DISEASE BY MEANS OF BOOKS.

The undersigned is preparing a paper upon "Books as a source of disease" to be read before the next "International Congress of Hygiene," and in order to obtain data, respectfully requests the readers of this note to send him an account of any cases, the source of which have been traced to books or papers, or where the evidence seemed to make books or papers the offender. He would also further request information where illness or even death has been caused by the poisons used in bookmaking.

All the information possible is wanted to present as complete a paper as possible. As in the case of insects which we now know to be "carriers of disease," it is first necessary to collect the scattered evidence in order to show that there is real danger in books; and this will compel better care to be taken of libraries and books and improve the health of mankind.

WM. R. REINICK,

1709 Wallace St., Philadelphia, Pa.

San Francisco, Cal., Oct. 28, 1911.

René Bine, M. D.,

Sec'y S. F. County Medical Society,  
San Francisco, Cal.

Dear Doctor:—The Hospital Commission of the San Francisco County Medical Society respectfully submits the following first report of its negotiations with the various hospitals of San Francisco.

To all the hospitals of San Francisco was sent a copy of the resolutions adopted by the San Francisco County Medical Society at its regular meeting March 14, 1911, with the request that they define their attitude toward the same.

The following hospitals communicated with the Commission, stating that they were in complete accord with the spirit of the resolutions of the County Medical Society, and, on investigation, these hospitals were found to be complying with the resolutions and are therefore "Acceptable" to the Commission. They are:

Adler Sanatorium.  
Hahnemann Hospital.  
Lane Hospital.  
Mount Zion Hospital.  
St. Francis Hospital.  
St. Luke's Hospital.  
St. Mary's Hospital.

University of California Hospital.

The two following hospitals received the communications of the Commission favorably and have made concessions to the profession in the lines indicated by the resolutions. They do not, however, fully meet the requirements of the resolutions and cannot for that reason be unqualifiedly classed as "Acceptable." The Commission is of the opinion that further time should be given these institutions and that they should be classed as "Provisionally Acceptable." These hospitals are:

The German Hospital.  
St. Joseph's Hospital.

The following hospitals have been communicated with repeatedly, but have not answered the Commission's communications. Investigation shows that they are not conducted in accordance with the resolutions of the County Medical Society, and they are therefore classed as "Not Acceptable." They are:

The Children's Hospital.  
The French Hospital.

All other hospitals not here included are private hospitals and are therefore not classified.

Very respectfully,

(Signed) FAYETTE WATT BIRTCH, Pres.  
CONRAD WEIL.  
M. O. AUSTIN.  
THOS. D. MAHER.

### SPECIAL STUDY OF PELLAGRA.

The Department of Tropical Medicine of the New York Post-Graduate Medical School is organizing an expedition to investigate Pellagra in the Southern States. The work will start in the spring and is made possible by the gift to the institution for this purpose of \$15,000.00 by Col. Robt. M. Thompson and Mr. J. H. McFadden.

### TROPICAL MEDICINE.

New laboratories, completely equipped for post-graduate medical instruction and research, have been organized and opened at the New York Post-Graduate Medical School and Hospital. The director is Jonathan Wright, M. D., and the staff includes: Tropical Medicine, in collaboration with the medical departments of the Army and Navy: James N. Phalen, M. D., Capt. Med. Corps, U. S. A.; Francis M. Shook, M. D., P. A. Surg., U. S. N.; Bacteriology: Ward J. MacNeal, Ph. D., M. D.; Richard M. Taylor, M. D.; Pathology: Ward J. MacNeal, Ph. D., M. D.; Oliver S. Hillman, M. D.; Biochemistry: Victor C. Meyers, Ph. D.; Morris S. Fine, Ph. D.



## DEPARTMENT OF PHARMACY AND CHEMISTRY.

Edited by FRED I. LACKENBACH.

The House of Delegates of the American Medical Association, at the sixty-second annual session held at Los Angeles, June, 1911, approved the following recommendations from the Section on Pharmacology and Therapeutics.

### Trademarks and Patents.

Whereas, Co-operation between the medical and pharmaceutical professions is essential for the development of materia medica science and the advancement of the art of preparing medicines and applying the same to the treatment of the sick, and,

Whereas, Progress in materia medica science and in the pharmacologic and therapeutic arts is being hindered and co-operation between physicians, pharmacists and manufacturers engaged in the chemical and pharmaceutical industries prevented by product patents and the registration of names as trademarks, which are afterward employed as generic or descriptive names of materia medica products; therefore, be it

Resolved, That we, the Section on Pharmacology and Therapeutics of the American Medical Association, representing the medical and pharmaceutical professions, do hereby request the House of Delegates to instruct the Council on Health and Public Instruction to draft amendments to the patent and trademark laws whereby no patents shall be granted on materia medica products, and the patents shall be limited to process and apparatus for manufacture, leaving the products themselves and the currently used names of the same free to science and commerce.

1. The recommendation that the American Medical Association should undertake an educational propaganda in behalf of the United States Pharmacopoeia and National Formulary is in harmony with the educational work of the A. M. A. and is thereby approved.

2. The testing of the therapeutic claims made by manufacturers of alleged new remedies is in harmony with the work of the A. M. A. Standing in the way of this work are the proprietary claims of the manufacturers . . . The Section approves the testing of new materia medica products which are free to science and commerce. Such test should include the work of experts in pharmacognosy, pharmacy, pharmacodynamics and therapy dynamics as well as the work of clinicians. Only by co-operation between experts in these various branches of pharmacologic practice can the science of the materia medica and the arts on which this science is dependent be properly developed. . . . (The attitude of the Association on this question finds practical expression in the work of the Council on Pharmacy and Chemistry and in the rules governing the admission of proprietary articles to NEW AND NONOFFICIAL REMEDIES.—F. I. L.).

4. The proper selection, preservation, preparation, compounding and dispensing of medicine requires proper education and training not included in the courses of instruction given in medical schools, but comprised in the courses furnished by schools of pharmacy. Physicians who have not duly qualified as pharmacists are not trained to undertake the work of the pharmacist. However, as stated in the recommendation of the delegation, there are conditions existing which require physicians to dispense their own medicines. The Section, therefore, recommends that physicians shall, as far as possible, relegate to pharmacists the dispensing and limit themselves to the prescribing of medicines; also that pharmacists place themselves in position to act in co-operation with the medical profession by refraining from counter-prescribing, and recommending medicines for self-medication whether prepared by themselves or others.

3. The Section does not approve of substitution of one product for another, or one brand for another, without the knowledge or consent of the pre-

scriber. Circumstances may sometimes arise when it is impossible to obtain consent beforehand. Under such circumstances the substitution of brands may be permissible but not the substitution of products. In such cases the prescriber should always be notified afterward and subsequent renewal of prescription be guided by the wishes of the prescriber.

### Ethical Rules For the Guidance of Physicians and Pharmacists in Their Relations With Each Other and With the Public.\*

Ethical principles or standards of right conduct exist irrespective of their foundation or codification. Ethical rules are calculated to elevate standards of moral conduct and to foster a spirit of harmony between professional men. A code of ethics is designed not only for the restraint of those who are actuated by unworthy motives, but for the guidance of those, also, who seek to be governed in their actions by high and true principles.

#### The Duties of the Physician to the Pharmacist.

1. The physician has no moral right to discriminate in favor of one pharmacist to the detriment of another, except for dishonesty, incompetency or unscientific methods of work.

2. The physician is never justified in receiving from a pharmacist gratuities in return for patronage; in depositing secret formulas with an individual pharmacist, or by word or deed to jeopardize his professional reputation.

3. The physician may sometimes find it an advantage to the patient to dispense the medicine; yet in the main it must be regarded as a subterfuge and a hindrance to all interests involved. The physician should, if practicable, avail himself of the superior technical skill of a trained pharmacist in the preparation and dispensing of medicines.

#### The Duties of the Pharmacist to the Physician.

1. The pharmacist who recommends drugs or medicines for specific remedial purposes, either directly or through the avenues of advertisement, thereby exceeds the limits of his profession and commits an act unworthy of his calling.

2. The pharmacist who consents to diagnose disease or prescribe for patients except where emergencies arise, without a proper medical training, assumes responsibilities for which he is not qualified and justly incurs the disapproval of physicians.

3. The pharmacist transgresses his true province when for commercial purposes he issues to physicians printed matter setting forth the therapeutic indications for the use of drugs or medicinal preparations. The constituents of a drug or compound, together with its chemical and physical properties, should be a sufficient guarantee of its utility.

#### The Duties of the Physician and the Pharmacist to the Public.

1. The combined efforts of the physician and the pharmacist are required to protect the public from the nostrum maker, the pseudo-scientific pharmacist, the sectarian physician and the drug vendor, and the two should be in continual alliance to demand the extermination of these commercial and mercenary institutions.

2. The physician and the pharmacist should, as far as possible, limit the multiplication of manufactured proprietary compounds. It must be regarded as reprehensible to encourage the use of these remedies to the exclusion of those which are official in the pharmacopoeias. It is also their plain duty to discourage the use and sale of all medicines which lead to baneful drug habits.

3. The best interests of the patient are undoubtedly conserved by the custom of physicians to practice rational therapeutics to the exclusion of those methods which tend to the use of many remedies or those of unknown composition; and the supreme effort of the dispensing pharmacist should be to complete the circle of therapeutics by supplying the demands of experimental and clinical teaching with eligible and trustworthy preparations.

\* Presented by the Medical Society of New Jersey to the U. S. Pharmacopoeal Convention, 1910.

## NEW AND NON-OFFICIAL REMEDIES.

Calcium Peroxide (Roessler & Hasslacher Chemical Co.)

Magnesium Peroxide (Roessler & Hasslacher Chemical Co.)

Strontium Peroxide (Roessler & Hasslacher Chemical Co.)

Zinc Peroxide (Roessler & Hasslacher Chemical Co.)

G. H. Sherman Vaccines:

Colon Bacillus Vaccine 40,000,000.

Colon Bacillus Vaccine 100,000,000.

Gonococcus Vaccine 20,000,000.

Gonococcus Vaccine 100,000,000.

Mixed Vaccine containing Gonococcus Vaccine 100,000,000, Staphylococcus Albus 40,000,000.

Pneumococcus Vaccine 40,000,000.

Pneumococcus Vaccine 100,000,000.

Mixed Vaccine containing Pneumococcus 30,000,000, Streptococcus 20,000,000.

Staphylococcus Pyogenes Aureus Vaccine 300,000,000.

Staphylococcus Pyogenes Albus Vaccine 300,000,000.

Mixed Vaccine containing Staphylococcus py. Aureus; Staphylococcus py. Albus; Staphylococcus Citreus; each 100,000,000.

Mixed Vaccine containing Staphylococcus py. Aureus; Staphylococcus py. Albus, each 200,000,000.

Mixed Vaccine containing Staphylococcus py. Aureus; Staphylococcus py. Albus, each 300,000,000.

Mixed Vaccine containing Staphylococcus py. Albus 400,000,000, Staphylococcus py. Aureus 200,000,000.

Mixed Vaccine containing Staphylococcus py. Aureus, Staphylococcus py. Albus, each 100,000,000.

Streptococcus Erysipelatis Vaccine 20,000,000.

Mixed Vaccine containing Streptococcus py. 30,000,000, Colon Bacillus 40,000,000.

Mixed Vaccine containing Streptococcus py. 30,000,000, Pneumococcus 40,000,000, Staphylococcus py. Aureus 150,000,000.

Mixed Vaccine containing Streptococcus py. 30,000,000, Staphylococcus py. Aureus, Staphylococcus py. Albus, each 100,000,000.

Mixed Vaccine containing Streptococcus py. 30,000,000, Micrococcus Catarrhalis 100,000,000.

Streptococcus Pyogenes Vaccine 60,000,000.

Streptococcus Pyogenes Vaccine 30,000,000.

Mixed Vaccine containing Streptococcus py. 60,000,000, Staphylococcus py. Aureus, Staphylococcus py. Albus, each 200,000,000.

Typhoid Bacillus Vaccine 50,000,000.

Typhoid Bacillus Vaccine 500,000,000.

Typhoid Bacillus Vaccine 1,000,000,000.

Since Sept. 1 the following articles have been accepted by the Council for new and non-official Remedies:

Adalin (Farbenfabriken of Elberfeld Co.).

Adalin Tablets (Elberfeld Co.).

Ferro-Sajodin (Elberfeld Co.).

Ferro-Sajodin Tablets (Elberfeld Co.).

Quinin Tannate (New York Quinin & Chemical Works).

Quinin Tannate (Brunswick Chemical Works).

Quinin Tannate (Powers, Weightman, Rosengarten Co.).

Bulgara Tablets (Hynson, Westcott & Co.).

Since October 1 the following articles have been accepted by the Council for New and Nonofficial Remedies:

Lutein Tablets (Hynson Westcott & Co.).

Calcium phenolsulphonate (Mallinckrodt Chemical Works).

Pankreon (Chemische Fabrik. Rhenania).

Calcium phenolsulphonate (Abbott Alkaloidal Co.).

Bismion (Kalle & Co.).

Yours truly,

W. A. PUCKNER, Secretary.

## THE RELATION OF THE VACUUM-CLEANER MACHINE TO PUBLIC HEALTH.

The general community, and the individual, owe a deep debt of gratitude to that once much misappreciated individual Dr. Rupert Blue, of rattish proclivities. He has taught us the danger which lies in the flea, the wicked flea, that every one pursueth and killeth—when he can catch it!

The writer was lately in a large mansion which was carpeted with velvet. Remarkable to say, there are never any fleas in that household. Why? Regularly, once a week the vacuum-machine goes over all that house. If there be any stray or alien fleas in that household, the vacuum-cleaner "gathers them in" and they are "goners."

Last week the vacuum-cleaner was at the writer's house. The writer then asked the operator of the v.-c. what he did with the dust taken up from the houses he operated in?

His answer: "We empty the vacuum-dirt in the garbage can."

"But," said this writer, "there must be both fleas and filth-disease-germs in this dirt."

To which he replied: "Neither germs nor fleas can pass through the vacuum-cleaner and remain alive."

We doctors well know that the mere passage of germs and fleas through the vacuum machine cannot have killed them. Possibly, benumbed them; but a short time suffices to restore their vitality. Now comes a suggestion for the State and County Boards of Health:

Knowing the vitality of these germs and fleas and their intimate relation to disease, would it not be of great benefit to the public health, to require that each and every operator of a vacuum-cleaner machine, for public hire, should burn the dirt taken from each and every house immediately after it has been taken from the machine, or as soon thereafter as practicable, on the day it was gathered. Thus both germs and fleas would be destroyed and disease therefrom prevented.

GEO. F. G. MORGAN, M. D.

## WOMAN'S PHARMACEUTICAL ASS'N.

The annual election of officers of the Woman's Pharmaceutical Association of the Pacific Coast was held October 27, 1911, in San Francisco. The following were elected: President, Dr. Josephine Barbat-Winslow; First Vice-President, Miss Clarissa Roehr; Second Vice-President, Mrs. J. H. Flint; Treasurer, Miss Pauline J. Nast; Secretary, Mrs. R. E. White, 416 Hayes, St., San Francisco, Calif.

## NEW MEMBERS.

Ray, Fred'k. S., Los Angeles.

Reynolds, J. Thos., Los Angeles.

Levin, Z., Los Angeles.

Baer, J. S., Los Angeles.

Ainley, F. C., Los Angeles.

Malsbary, Geo. E., Los Angeles.

Dickerson, W. L., Long Beach.

George, W. S., Antioch, Cal.

Goodman-Taylor, C. W., San Diego.

Klotz, B., Vallejo, Cal.

Downing, W. E., Vallejo, Cal.

Doran, A. V., Vallejo, Cal.

Brownlie, Jas. W., Vallejo.

## RESIGNED.

Laird, Mary J., Sanger, Cal.

## DEATHS.

Lanthurn, E. P., Stockton, Cal.

Casey, P. F., Oakland, Cal.

De Lucis, Peter, San Francisco. (Died in Reno, Nevada.)









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